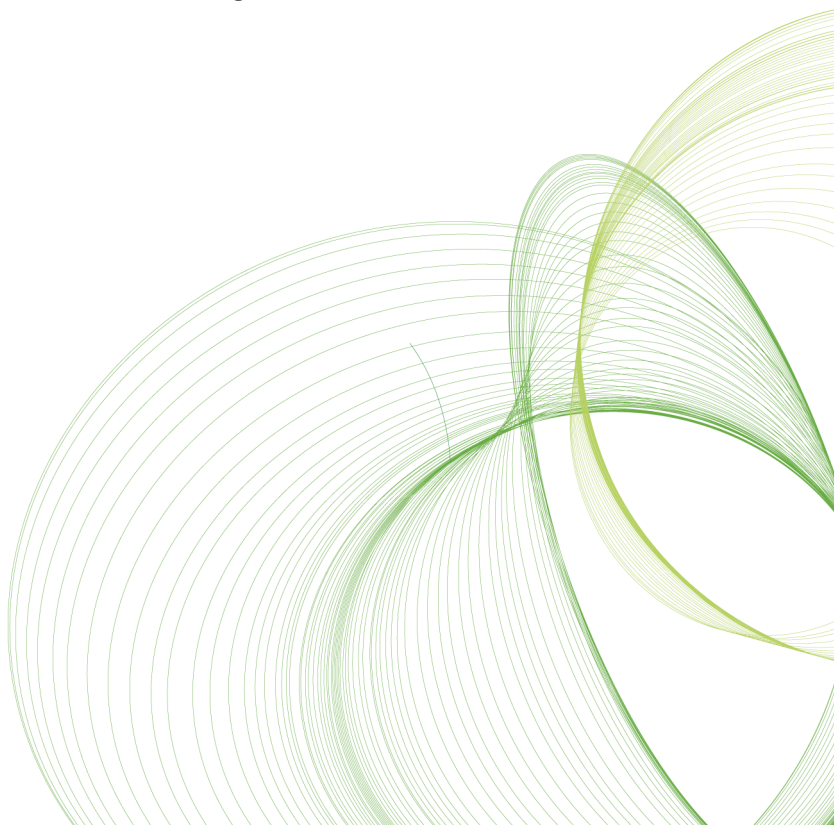




# Designer I

September 2009 Release

QlikView Version 9.00 English



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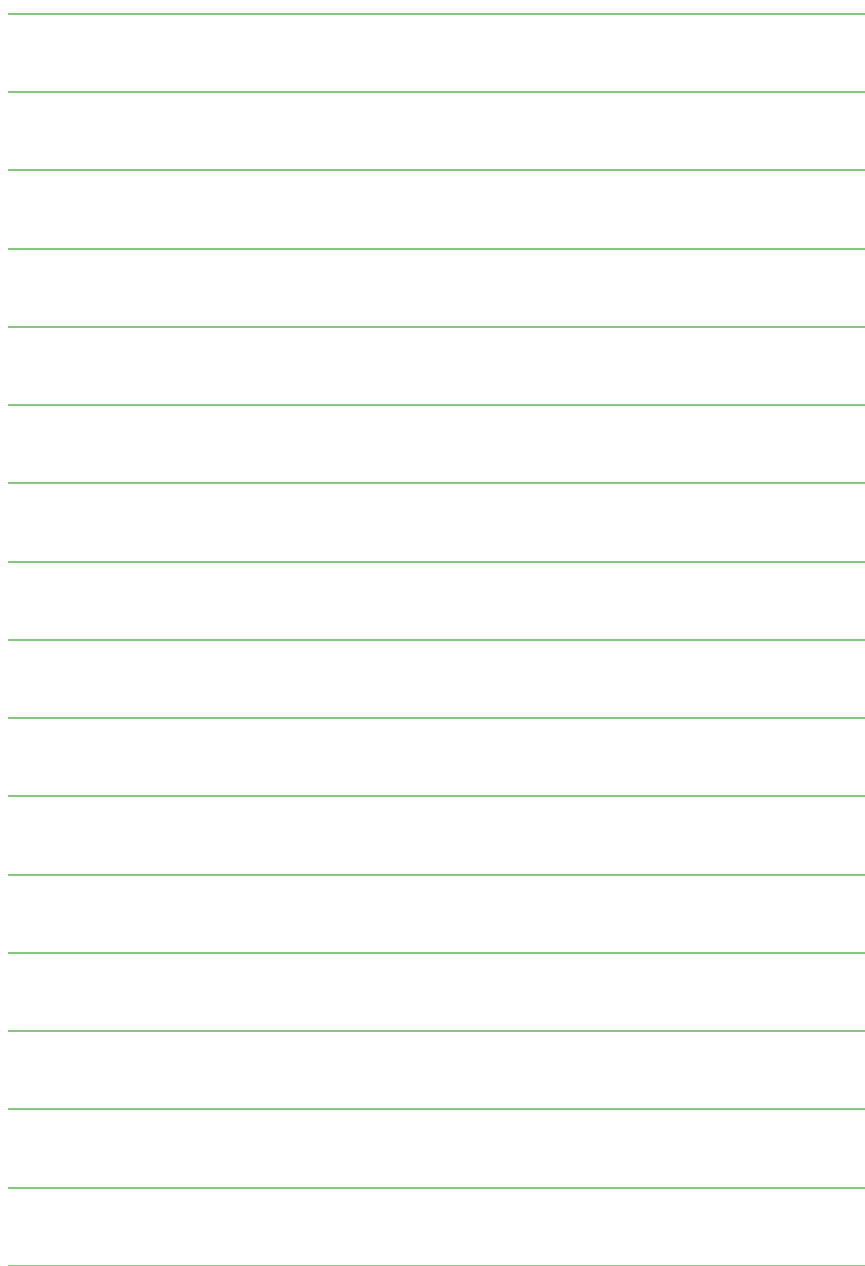
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# 1 INTRODUCTION

## Objectives

- Learn about QlikTech
- Define the QlikView product family
- Appreciate how and why QlikView is different

This chapter introduces the company, QlikTech, and explains the differences between the QlikView products. It outlines the basic capabilities of QlikView Desktop and the underlying contents of a QlikView file. It also lays out the format and structure of the rest of the manual, and guides you through the installation of QlikView Desktop and the course materials on your computer.

## Who is QlikTech?

QlikTech was founded in Lund, Sweden in 1993. Today, research and development continue to be focused in Lund. Our International Headquarters are in Radnor, Pennsylvania. QlikTech has offices and partners around the world and is experiencing rapid and sustained growth.

Information is the lifeblood of any organization. It is the foundation of knowledge, and knowledge is the basis for appropriate action. This can be a distinct competitive advantage. QlikTech delivers fast, powerful and affordable data analysis and reporting solutions, giving users clear insight and enhanced decision-making capabilities across the enterprise.

How does this happen? Through innovative technologies and unmatched customer service.

## What is QlikView?

QlikView is a revolutionary platform that simplifies analysis for everyone. It is user-friendly and provides superfast in-memory analysis capabilities by dynamically integrating and presenting data from multiple data sources, or a single Excel or text file.

QlikView provides analysis and reporting that is

- Easy to use
- Broadly distributed
- Flexible
- Insightful

QlikView files can be deployed to users on corporate networks or through sophisticated web-based portals and can be viewed in many different file types. Some of the more common analysis clients for QlikView files include

Java Objects, Internet Explorer plug-in, AJAX (Asynchronous JavaScript and XML) Zero-Footprint and Windows-based clients. QlikView analysis files can also be e-mailed, just like a Word or Excel document, and can be secured in many different ways.

QlikView files are created using QlikView Desktop and are deployed and distributed using QlikView Server and QlikView Publisher. Users access the files with QlikView in various client types, listed above.

## The QlikView Products

QlikView products include:

Desktop — to build a full-function QlikView application

Clients— for the End User

Server — for Deployment of QlikView applications

Publisher — for Distribution of QlikView applications

## QlikView Desktop

This course, QlikView Designer I and the subsequent class, Designer II focus on the user interface designer's toolkit for creating compelling QlikView layouts and design. QlikView Desktop is also the subject of a different series of classes, Developer I and Developer II with the focus on extracting, modeling and loading data to be used in the construction of effective analytical tools.

QlikView manages information like the human brain works. Just like the human brain, QlikView makes associative connections in the information being processed. You – not the database – decide which questions to ask. Just click on the item you want to know more about. Conventional information search systems often require a top-down approach, while QlikView allows you to get started with any piece of data regardless of its location in the data structure.

The retrieval of data in conventional systems is often a complex task requiring extensive knowledge of the structure of the databases and of the syntax of the query language. The user is frequently limited to predefined search routines. QlikView revolutionizes this by making it possible to select freely from data displayed on the screen with a click of the mouse.

QlikView is flexible. You are the one to decide how the program is to be used. QlikView helps you acquire a unified and coherent overview of the data in different databases and/or datasources. QlikView can be used with virtually any database and/or datasource.

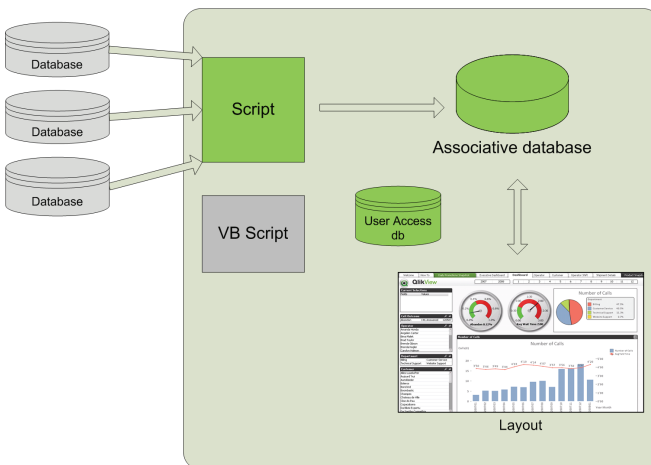
With QlikView you can

- create a flexible end user interface to an information warehouse

- get snapshots of data relations
- make presentations based on your data
- create dynamic graphical charts and tables
- perform statistical analysis
- link descriptions and multimedia to your data
- build your own expert systems
- create new tables and merge information from several sources
- build your own business intelligence system

Some examples of QlikView applications being used today are financial systems, sales analysis, human resources administration, market analysis, customer support, project administration, production control, stock inventories and purchasing. You can even mix the different applications to gain entirely new information overviews.

A QlikView document is not a database in itself, although each Qlikview file contains its own data repository that is updated every time the script is run. The contents of a typical QlikView document are shown, below:



*Figure 1. The structure of a QlikView file and its relation to external data sources.*

We will be working with existing QlikView (.qvw) files in this course and focusing almost exclusively on the layout (data display) of QlikView files. The next section will guide you through the process of installing QlikView Desktop and the course materials on your computer.

## Course Logistics

### Preparing for Class

Installing the Course Materials

The course materials will self-extract from the file into the default directory

**C:\QlikViewTraining\Designer\**

Make a Windows shortcut to this folder and place it on your desktop.

Also make a Windows shortcut to the documentation folder (see below) and place it on your desktop.

**C:\Program Files\QlikView\Documentation**

### Notes

#### Program versions

This course material was created using the English version of QlikView 9.00 running on WindowsXP. Thus, if other operating systems or languages are used, minor differences may be noted in the visual appearance of windows and dialog boxes.

#### Text formats of this material

Exercises and actions to be completed by you, the student, will be set-off with a logo, as you see, below:



### Exercise/Do:

This is a sample of instructions you would see to complete an exercise containing a sequence of steps.

- 1 Click on the **Start** button
- 2 Locate the QlikView icon
- 3 Click on the QlikView icon to launch the program

All commands, as well as all names of menus, dialogs and buttons are in the following font style: **File - Open**

All names of list boxes, graphs and specific data in list boxes, etc. are in the following font style: *Country*

All file names are in the following font style: **QlikViewCourse.qvw**

Tips and Notes are outlined in a highlighted box, as you see below:

This sample sentence is used to illustrate important points in the text, tips and notes to consider as you complete the course materials

## 2 LAYOUT AND DESIGN BEST PRACTICES

### Objectives

- Introduce the concept of natural human behavior (how we perceive and process information)
- Understand fundamental user interface layout and design best practices
- Apply the Dashboard-Analysis-Reports (DAR) concept

Layout and design are crucial to a successful QlikView application. This chapter will introduce some simple concepts that QlikView developers should find useful when making basic design decisions.<sup>1</sup>

QlikView is not only a developer tool for accessing data, it also provides an elegant designer's toolkit for building an appropriate user interface.

We will cover:

- Natural Human Behavior
- Recommendations
- Guidelines for Basic Choices for Charts and Objects in QlikView
- Introduction to the DAR Concept (Dashboard - Analysis - Reports)

Let's get started by looking at our behavior as human beings, how we interpret information, and the effect the presentation of information has on our perceptions.

### Natural Human Behavior

In this section of the course, we will look at how people see things. In particular, we will examine the impact of specific considerations on the perception and, therefore, the success of our designs. These considerations include:

- Visual Perception
- Positioning
- Colors
- Sizes
- Logos and Images
- Fonts
- Borders

---

1. Some of the information in this chapter comes from *Information Dashboard Design: The Effective Visual Communication of Data*, by Stephen Few. Sebastopol, California: O'Reilly Media, Inc., 2006.

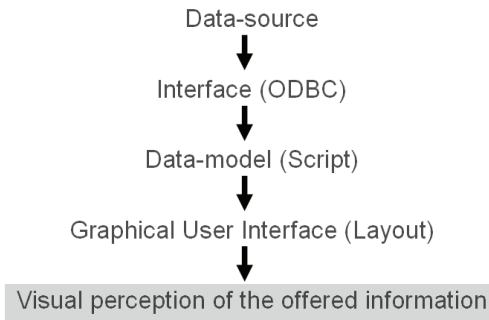
By examining each of these areas, we will be able to make judgements about how we build our QlikView applications, the objects we choose, where we place them on the screen, the colors and fonts that go into the finished product.

## Visual Perception

Here is a direct quotation from an expert in information design, Collin Ware, from his book, *Information Visualization: Perception for Design, Second Edition* (San Francisco: Morgan Kauffman, 2004), xxi.

[W]hen data is presented in certain ways, the patterns can be readily perceived. If we can understand how perception works, our knowledge can be translated into rules for displaying information. Following perception-based rules, we can present our data in such a way that the important and informative patterns stand out. If we disobey the rules, our data will be incomprehensible or misleading.

How we “see” determines how we “perceive.” Although vision is the conduit, perception comes from our brains. It is there that sense is made of what we see. Perception, in turn, is limited by what we focus on, and only a fraction of that makes it into our consciousness. An even tinier amount of what grabs our conscious attention, our focal point, gets stored in our memories. From the QlikView perspective, here is a top-down view of the relationship between data and, ultimately, the end-user’s ability to make sense of it.



*Figure 1. Putting the pieces together to understand the significance of visual perception with QlikView.*

This is important, because our eyes do not register everything that is visible, but, rather, only what they perceive, and this, again, is controlled by the brain. Since only a small part of what we “see” becomes our focus, and only a fraction of that grabs our attention or becomes part of our conscious



thought, and, finally, even less gets stored for future use, our designs of human interfaces, in this case, our QlikView pages, are crucially important. Obviously, bad data, no matter how well presented, leads to error. Without good design, though, even the best data will be impenetrable or, perhaps even worse, specious.

Before moving further into layout and design best practices, let us take a moment to understand how our memories work.

#### Limits of Short Term Memory

Human beings have three types of memory. They are:

- Iconic
- Short-term
- Long-term

**Iconic memory** is based upon something called *pre-attentive processing*. Certain attributes of what we see are recognized during pre-attentive processing. Circles and squares, bolded items set-off from unbolded items, sets of objects grouped together: these are examples of things that stand out for pre-attentive processing.

Preattentive processing is extremely fast. We can learn some basic design rules to help us build our QlikView pages to take advantage of preattentive processing.

The following two figures demonstrate the difference between attentive processing, which is linear and slow, versus preattentive processing, which is subconscious and lightning fast.

How many 5's can you find?

1265493578987534687321357987246872465795432749

126**5**493578987**5**34687321**3**5798724687246**5**7**9**5432749

*Figure 2. An example of attentive versus preattentive processing.*

More attention will be paid to preattentive processing design principles in the subsequent sections of this chapter.

**Short-term memory** is where you store information while you are processing it. Typically, this means 3-9 chunks of visual information at a time. When

your short term memory gets full, pieces are either moved to long-term memory (see below) or forgotten!

We can extrapolate some basic design theories from this.

**Tip:** You should never fragment information that belongs together. Scrolling is out. Keep everything relevant within human eyespan on a single screen, ensuring the exchange of information in and out of short-term memory at lightning speed.

**Long-term memory** is fundamentally different from iconic and short-term memory. It is a memory that lasts longer, and is stored differently. Within the limits of human endeavor, long term memories can be understood best as a means of keeping, organizing and remembering information/events over time. Some long-term memories last weeks, others years or even decades, sometimes for an entire lifetime.

#### Gestalt Principles of Visual Perception

*Gestalt* is a German word for patterns. The Gestalt School of Psychology is based on the premise that human beings organize what they see in specific, observable ways in order to comprehend it. The Gestalt principles of perception encompass visual characteristics that cause humans to group things together.

From an understanding of these basic principles, we can create our QlikView pages to intentionally connect certain data, to separate other data, and to make data stand out from the rest.

These characteristics include:

- Proximity
- Closure
- Similarity
- Continuity
- Enclosure
- Connection

Examples of these Gestalt principles of visual perception follow, below.



*Proximity: White space separates the 3 groups that we automatically see (instead of 10 dots).*

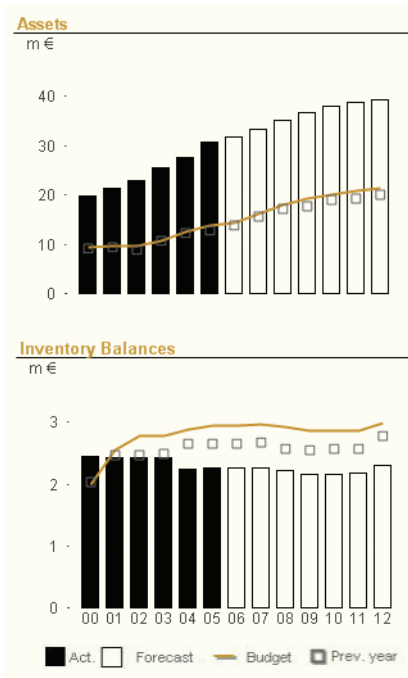


*Closure: We naturally perceive this object as a complete oval rather than three curved lines.*

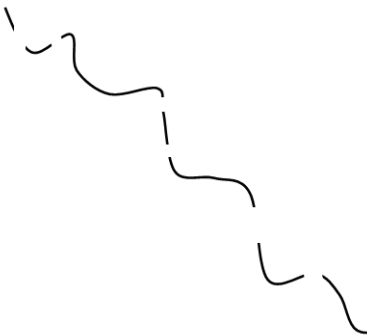
*Note, too that we can make use of this to group object into visual regions without the use of complete borders and lines.*

*Our brains do the work for us. This is important as every object (every line, every ink pixel) needs to be processed.*

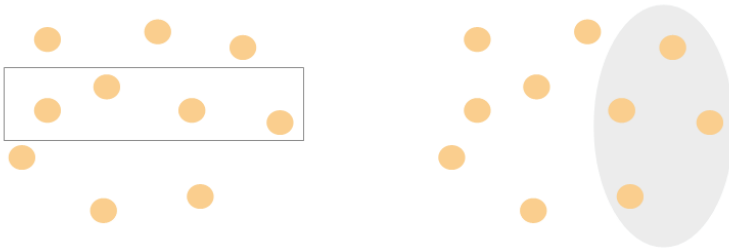
*To maximize the rate of information per screen, we take away everything that is not needed, everything that does not carry information. Taking away unnecessary content avoids clutter.*



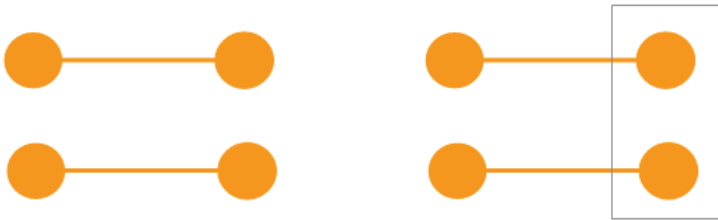
*Similarity: Similarity works very effectively to identify different data sets in a graph. Only one legend is required in the example, above.*



*Continuity: Why we see this as a single wavy line, not a series of dashed lines.*



*Enclosure: Please note that the arrangement of the two sets of circles is identical. It does not take much to direct our perception to group the elements in the desired way. (Thin line, light shade of gray)*



*Connection: The perception of grouping produced by connection is stronger than that produced by proximity or similarity. But it is weaker than that produced by enclosing.*

Designers face two challenges when building effective interfaces for human visual perception.

The first challenge is to highlight the most important data so that it is prominently displayed.

The second challenge is to give meaning to large amounts of disparate data and information by proper arrangement in support of efficient perception.

Neither of these are easy tasks. The remaining sections of this chapter give specific advice and tools to help prepare you to build good QlikView pages to meet these two challenges.

## Positioning

Positioning, as you would expect, is all about the placement of objects on the page. By nature, human beings are drawn to look at the page in a certain

way. Knowing that, it makes sense to design your QlikView pages to take advantage of our natural tendencies to be sure you get your point across.

In general, your eyes will be drawn to the top left corner of the page first, as in the figure, below.



*Figure 3. Location grid showing the order of attention on a page, by quadrant*

It is logical to assume, then, that the top left corner of the page is the most valuable location, since it will always be viewed first.

In some situations, more complex grids require your mind to do a little more work, such as in the figure, below.

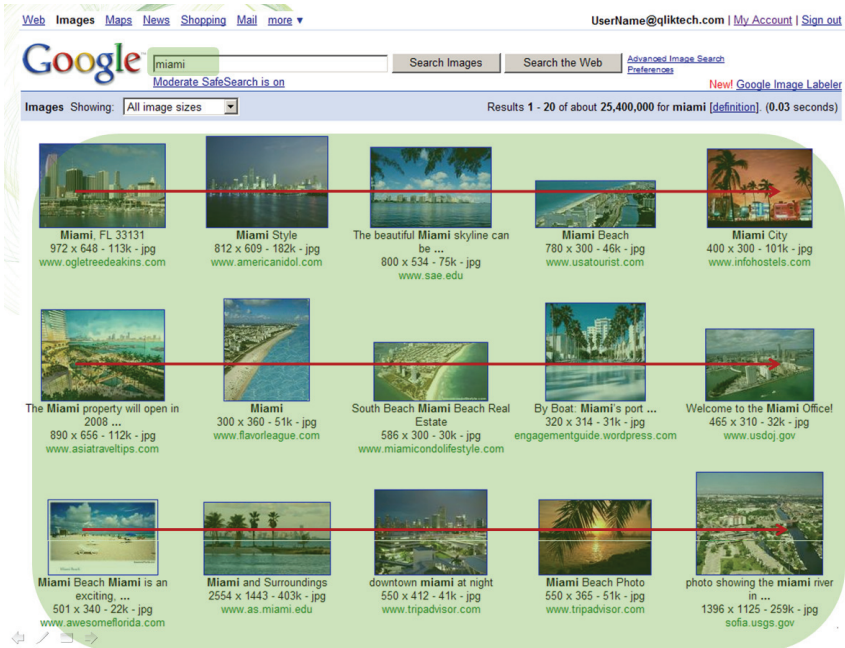


Figure 4. Determining that “Miami” is the organizing principle of this view means work, but, once understood, the pictures can be viewed from left to right and top to bottom.

The image, above, is a good example of an overly complex view. Simplicity is a good rule to remember when designing. Do not place too many objects in one view.

**Tip:** Limit number of significant objects on a page to four, one for each quadrant.

## Colors

Some colors take a hold of us and shake us. Fully saturated, bright colors do this. Colors that are common in nature, such as soft grays, browns, oranges, greens and blues are soothing, calm and do not scream for attention. These should be our standard colors.

Proper use of colors in your design means that the QlikView users will look where you want them to look. Colors are a very powerful “eye navigator.”

Make sure you indicate the right way, by signaling – with colors – where the important information resides.

Reserve the bright fully saturated colors for special cases. An example of the relationship between *Emphasis* colors and *Standard* colors follows.

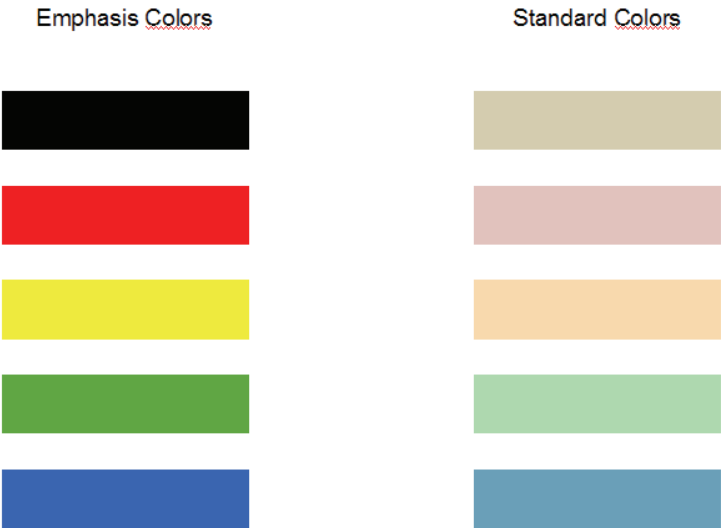
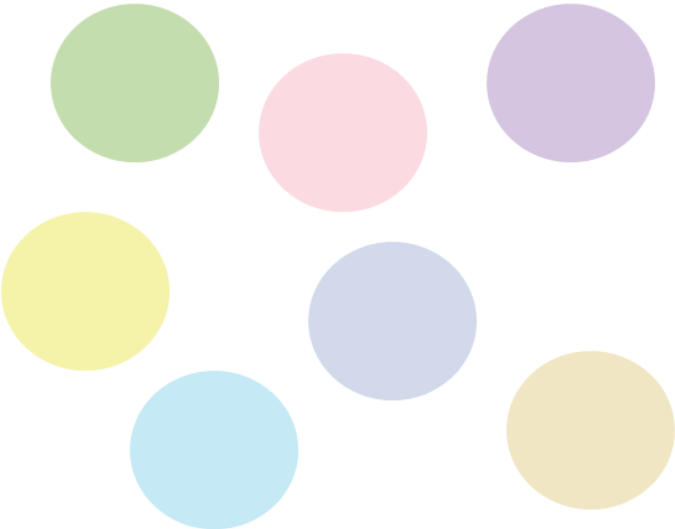


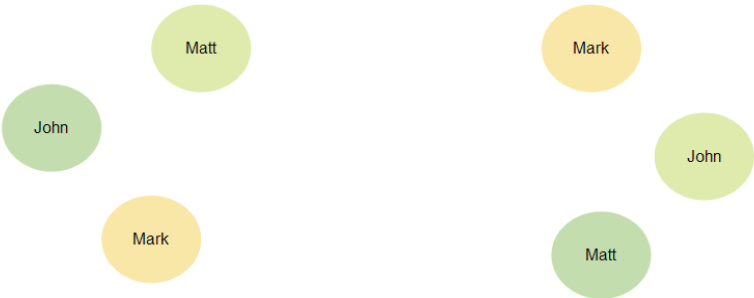
Figure 5. Comparison between *Emphasis* and *Standard* color schemes

Other issues with color choices include the number of different colors used, color persistency and color choice.





*Figure 6. Too many colors: it is impossible to tell which bubble is more important.*



*Figure 7. Color persistency problem: the bubbles on the right do not use the same colors to represent the elements in the bubbles on the left.*

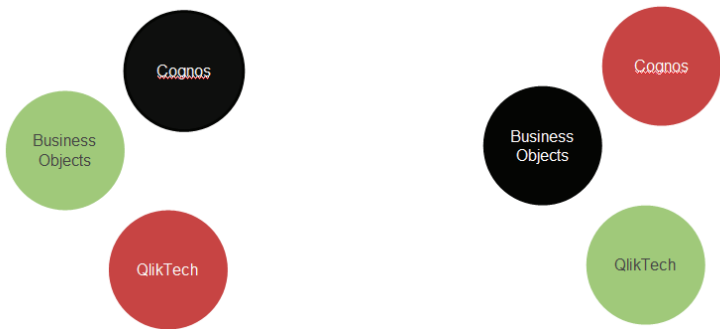


Figure 8. Color choices: your preference for a vendor might be revealed by your color choices.

Color must be used correctly, with an understanding of the background, frame of reference and objective in delivering information to the user.

Sizes

Even without colors, size matters. We have already seen that pages are typically broken into four quadrants of equal proportion. Within objects themselves, size can play an important role in helping your users focus on the most meaningful information, the things you, as a designer, want to emphasize.

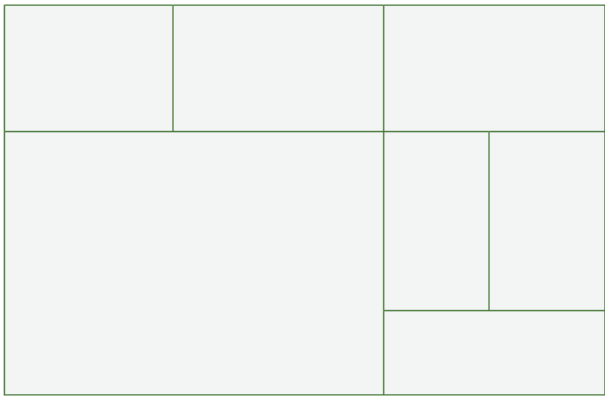


Figure 9. Example showing the significance of size. Even without any colors, your attention is drawn to the largest box.

**Tip:** When placing objects, give good size, space and location to the most important KPIs. Alternatively, you can equalize chart sizes to force the same amount of attention.

## Logos and Images

Logos and images are tempting. They can be nice to look at and make your interface look pretty. Even so, you should avoid them, unless they are required for marketing or corporate standards.

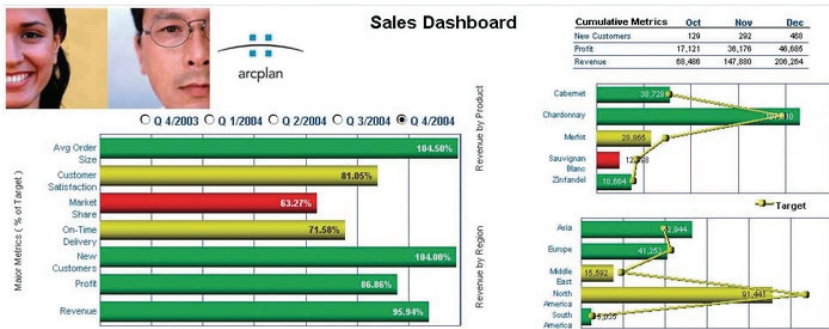


Figure 10. An example of images and logos improperly placed, using the most valuable space on the page; not good design.

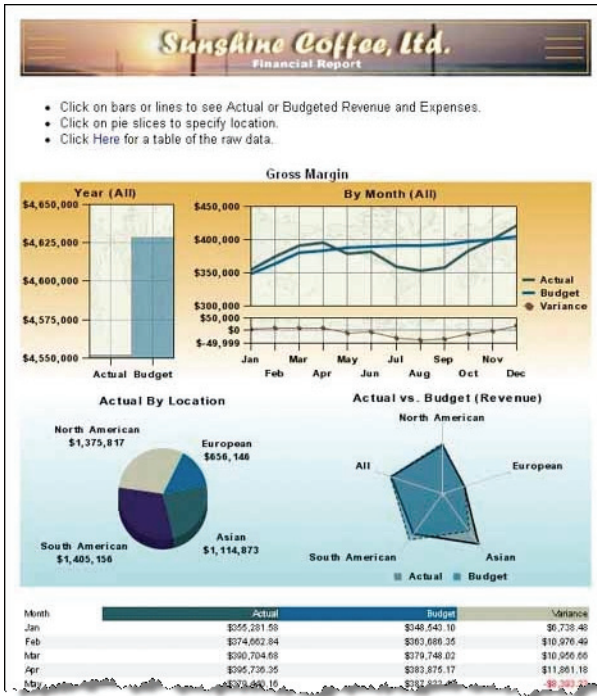


Figure 11. An example of inappropriate logo usage, too prominent and using valuable location on the page.

The predominant danger with logos and images is their tendency to become the point of emphasis on the page, when, in fact, it is the data that should be emphasized.

If you must use logos or images, try to keep them small, unassuming and out of the way.

## Fonts

Fonts are another temptation to display errant creativity. The purpose of good design is to convey meaningful information as quickly and simply as possible. Avoid the urge to embellish with special fonts. In fact, choose the simplest font possible and be consistent with it. If you need to use one other font for headings or titles, so be it.

Fine Legibility		Poor Legibility	
Serif	Sans-Serif	Serif	Sans-Serif
Times New Roman	Arial	<i>Script</i>	<b>Gill Sans Ultra</b>
Palatino	Verdana	<b>Broadway</b>	Papyrus
Courier	Tahoma	Old English	Tempus Sans ITC

Figure 12. Legible versus illegible fonts.

Remember, your goal is to give your user the font that can be read the fastest, and with the least amount of eye strain.

Borders

Once again, the dominating design principle is to emphasize the data. In some circumstances, borders can help with this. In others, the absence of borders may be preferred.

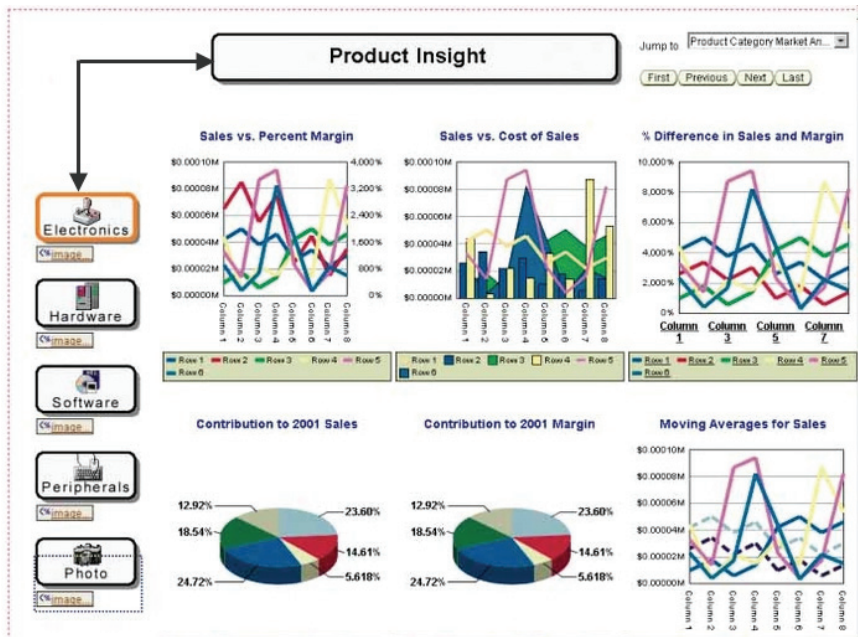


Figure 13. Borders that distract.

Product	Units Sold	Actual Revenue	Region	Units Sold	Actual Revenue
Shirts	938	187,600	North	2,263	133,066
Blouses	1,093	114,765	South	1,920	112,905
Pants	3,882	62,112	East	1,303	76,614
Skirts	873	36,666	West	754	44,355
Dresses	72	2,088	Canada	618	36,291
Total	6,858	\$403,231	Total	6,858	\$403,231

Channel	Units Sold	Actual Revenue	Warehouse	Units Sold	Actual Revenue
Direct	2,057	120,969	Virginia	2,537	149,195
Distributor	1,921	119,903	California	1,920	112,905
Reseller	1,783	104,840	Texas	1,372	80,646
OEM	1,097	64,519	Calgary	1,029	60,485
Total	6,858	\$403,231	Total	6,858	\$403,231

Product	Units Sold	Actual Revenue	Region	Units Sold	Actual Revenue
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Reseller	1,783	104,840	Texas	1,372	80,646
OEM	1,097	64,519	Calgary	1,029	60,485
Total	6,858	\$403,231	Total	6,858	\$403,231

Figure 14. An example where white space is used (top half) in lieu of a border. In the bottom half, light borders are appropriate in place of the missing white space.

**Tip:** Any border which draws attention to itself, rather than the presentation of data, is inappropriate

## Recommendations

### Edward Tufte's Five Principles

We have spent some time going over Natural Human Behavior and all that it infers about design best practices. Much of the material we have covered so far has been drawn from the writings and designs of Stephen Few.

In addition, we should touch upon the over-arching principles promulgated by Edward Tufte, probably the leading expert on information design.

He summarizes the challenge faced by all designers who must figure out the means to represent a world of myriad dimensionality within the context of relatively limited displays.

His framework for doing this can be summarized in the following five principles of information design:

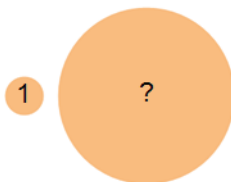
- 1 Quantitative thinking comes down to one question: Compared to what?
- 2 Try very hard to show cause and effect.
- 3 Don't break up evidence by accidents of means of production.
- 4 The world is multi variant, so the display should be highly-dimensional.
- 5 The presentation stands and falls on the quality, relevance, and integrity of the content. Content, like location in real estate, is king.

### Advice

If we were to list out all the best design guidelines, we could easily fill a few dozen pages or more. The following are some of the more obvious and important ones.

- 1 The data must be of high quality.
- 2 Include comparisons.

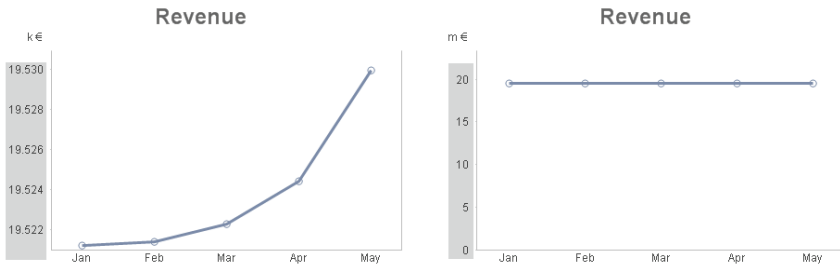
**How much bigger is the right circle?**



**Answer: 21 times!**

*Comparisons are a very effective way to show relationships.*

- 3 Content that is related should be linked.
- 4 Simplicity always trumps an excess of detail.
- 5 Any chart is more readable with solid colors, not gradients.
- 6 In many cases, a simple bar chart is superior to a radar chart or a pie chart.
- 7 Pay attention to scale.



*Q: Which company is doing better? A: Neither. They are identical. The scales, highlighted in gray, are different.*

- 8 Avoid 3-dimensional anything.
- 9 Single, neutral colors are easier on the eyes.
- 10 If you use multi-colors, be sure they are used consistently.
- 11 Remove redundancy, within reason.
- 12 Users should never scroll to find something important.
- 13 Keep the macro view if it is meaningful, then break it into smaller chunks.
- 14 Revise and edit; prune, review, revise and edit some more!

## Chart and Object Choices in QlikView

All of the major QlikView objects and chart types are covered in either this course, or in the Designer II course.

For now, it is important to address design considerations when choosing QlikView objects for specific needs. This section of Layout and Design Best Practices is meant to serve as a reference guide for picking the right object or chart to fit the type of analysis to be done.

We will cover the following QlikView object types:

Charts —

- Bar
- Line
- Combo



- Radar
- Gauge
- Scatter
- Grid
- Pie
- Funnel
- Block
- Straight Table Chart
- Pivot Table Chart

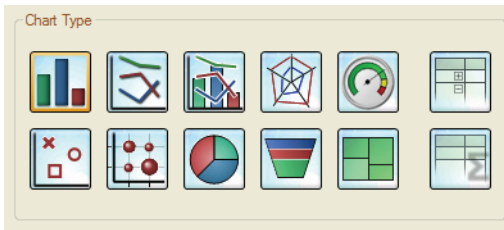


Figure 15. Selection of Chart Types in QlikView, including pivot and straight tables

For each type of chart we will list the type of analysis used and some sample metrics, beginning with Bar charts.

## Bar Charts

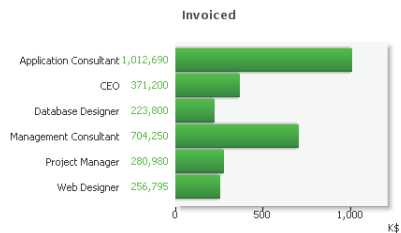
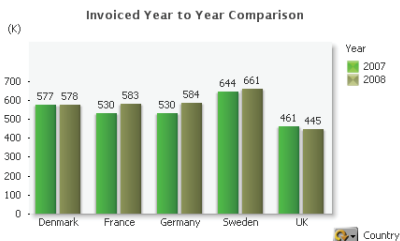


**Best:** Comparisons of similar measurements

**Examples:**

- Actual vs. Budget — Money to Money, Quantity to Quantity
- Time — Time
- Top N — Categorized Values (sales reps, customers etc)

**Avoid:** Comparisons with different units (\$ and Qty)



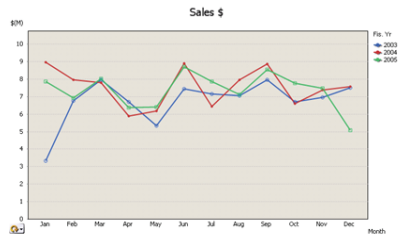
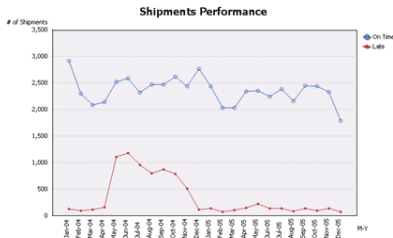
## Line Chart



**Best:** Measurement to follow its movements or comparisons among items

**Examples:**

- Performance Trends — Amount of movement over time
- Two Dimension Comparisons — Annual Comparisons over Months

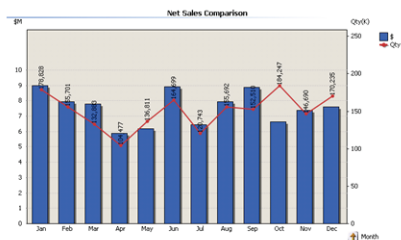
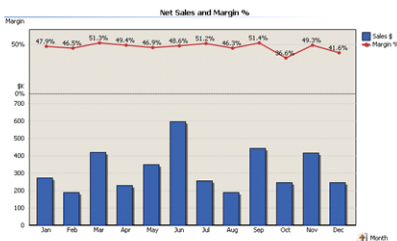


## Combo Chart

**Best:** Comparisons for multi-measurements

**Examples:**

- Two measurements — Currency Amount and Quantity or Amount and Percentage
- Two Axis — Different measurements on left and right axis
- Two or More Axis — Split axis horizontally



Radar Chart



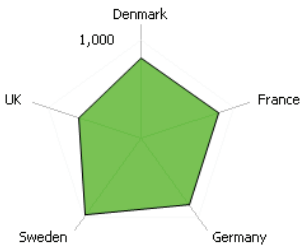
*Best:* Comparisons of high-level groups

Examples:

- One or Two Measurements — Sales and Profit

*Avoid:* a dimension with many values

Gross Profit (Invoiced - Salary)



Gauge Chart

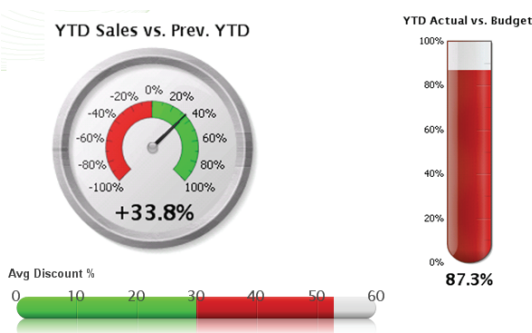


*Best:* Ratio of measurements

Examples:

- Percentages — Margin, Quota Achieved, Year-tot-Date vs. Last YTD

*Avoid:* Actual amounts



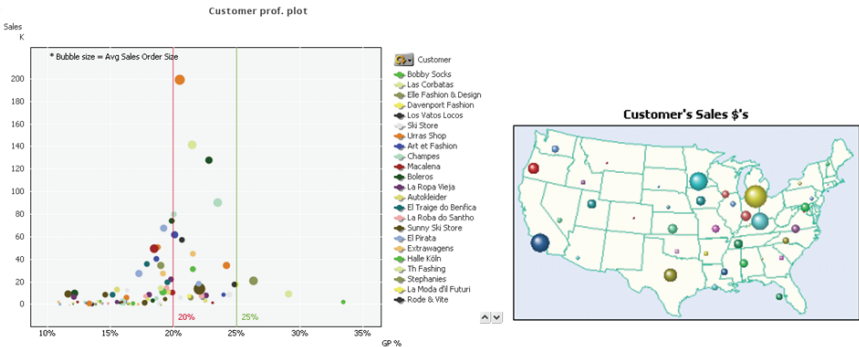
Scatter Chart



*Best:* Measurements act as dimensions (3D chart)

Examples:

- 3D Measurement Chart — Amounts, Quantity and Number of Customers
- Map Chart — See sales on a geographical map



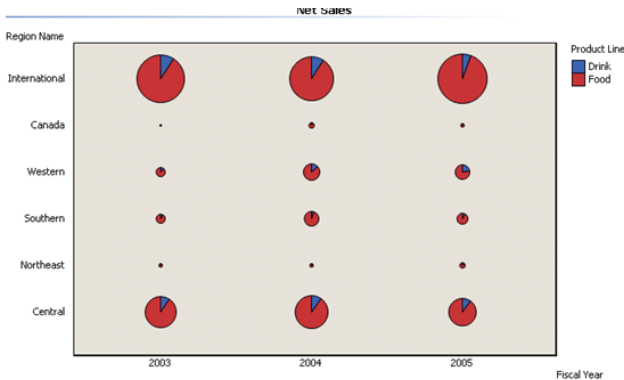
Grid Chart



*Best:* 2 or 3 dimensions with a measurement

Examples:

- Multi-cross dimensional measurements
- Amounts over region and product, over time



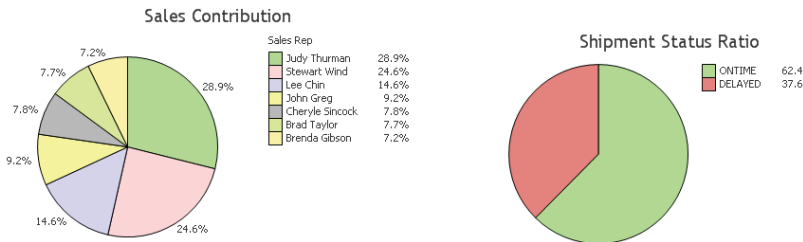
Pie Chart



*Best:* Visual distribution measurements

Examples:

- What contributes how, to the whole — Regional Sales
- Yes / No analysis



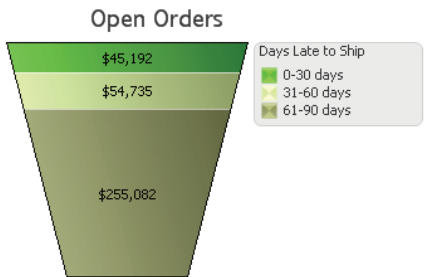
Funnel Chart



*Best:* Dimension that contains an expiration timeline

Examples:

- How much is the most aging element?
- Sales Opportunities
- Product Inventory by Expirations



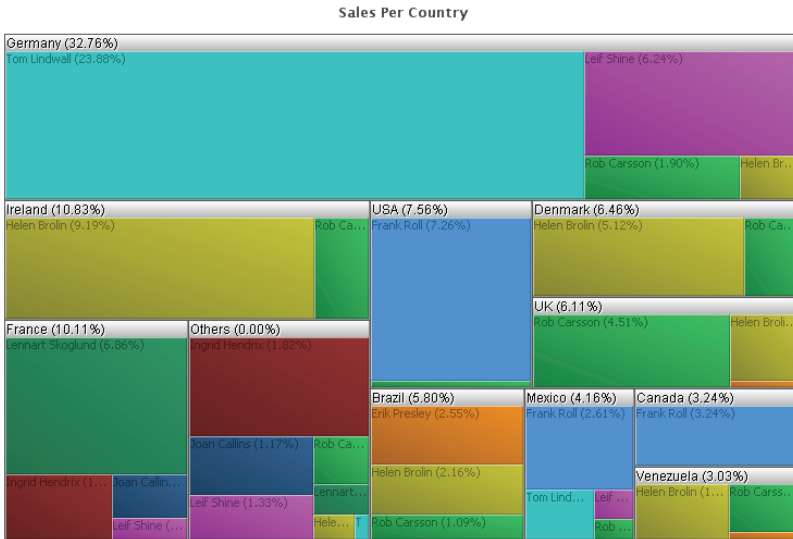
## Block Chart



*Best:* Distribution measurements within multi-dimensions

Examples:

- What contributes how to the whole and within each segments
- Sales contribution per country



## Straight Table



*Best:* One dimension with multiple measurements

Examples:

- KPI Overview — Cycle group dimension with Sales, Qty, Margin
- Sort in any columns (No grouping)

Top 20 Products

Customer	Total Sales	Gross Profit	GP%
	<b>1,717,188</b>	<b>350,693</b>	<b>20.4%</b>
Grunewald	199,503	40,963	20.5%
Th Fashing	141,748	30,451	21.5%
Boleros	128,416	29,280	22.8%
Champes	90,709	21,336	23.5%
The Corner Store	80,198	16,083	20.1%
Eintrach GS	74,248	14,750	19.9%
Don Balón	67,887	13,075	19.3%
Warp AG	61,978	12,469	20.1%
Rode & Vite	57,544	11,895	20.7%
Boombastic	50,922	9,573	18.6%
Roba di Piel	49,783	9,190	18.5%
Extrawagens	45,274	9,765	21.6%
Bond Ltd	41,087	7,675	18.7%
Gluderstedt	36,098	6,461	17.9%
Noch Einmal GMBH	35,193	6,692	19.0%
Urras Shop	34,604	8,376	24.2%
Halle Köln	31,630	6,808	21.5%
Menàge à Trois	27,641	4,782	17.3%
El Zapato Rojo	27,576	5,295	19.2%
El Carnevale	22,545	4,465	19.8%

## Pivot Table



**Best:** Multi-dimensions with one or more measurements

Examples:

- Grouping of dimensions — Product sales by item
- Dimension across the table — Annual sales by months
- — Variance calculation using before( )

Limitations:

- No repetition of the same values (grouped)
- No end-user sort by double-click

Year	2005		2006		2007	
Month	Total Sales	GP%	Total Sales	GP%	Total Sales	GP%
Jan	17,959	15.6%	44,958	17.3%	71,736	18.8%
Feb	7,465	25.7%	3,495	19.0%	35,717	15.7%
Mar	43,000	20.8%	60,255	19.3%	138,741	19.8%
Apr	46,222	20.0%	39,009	23.2%	104,036	18.4%
May	27,468	22.5%	27,457	21.8%	66,271	16.6%
Jun	16,412	18.7%	62,527	23.7%	23,726	20.1%
Jul	22,424	22.7%	39,921	20.1%	67,468	20.3%
Aug	13,835	24.8%	36,724	20.3%	67,083	19.3%
Sep	8,693	21.8%	59,109	21.2%	52,816	13.6%
Oct	23,488	23.6%	93,486	22.6%	39,204	19.5%
Nov	32,745	27.1%	67,335	22.1%	13,070	22.3%
Dec	84,332	21.5%	64,144	22.8%	94,858	22.4%
<b>Total</b>	<b>344,043</b>	<b>21.8%</b>	<b>598,420</b>	<b>21.5%</b>	<b>774,725</b>	<b>19.0%</b>

Salesman	Customer	Sales	Gross Profit
Elvis Presley	Cloe do Pau	586	62
	Copacabana	2,432	99
	Da Bikini Expertu	660	64
	Da Santho Cosmethia	66	10
	El Carnevale	4,190	60
	Merced do Valle	5,777	178
	Paintho da Gama	849	73
	Roba di Piel	13,798	461
	Tendha do Flamengo	317	15
	<b>Total</b>	<b>28,674</b>	<b>1,022</b>
Helen Brolin	El Carnevale	10,424	381
	Merced do Valle	1,798	45
	Paintho da Gama	9,160	99
	Tendha do Flamengo	1,179	39
	<b>Total</b>	<b>22,560</b>	<b>564</b>
Rob Carrsson	Cloe do Pau	6,109	225
	Copacabana	2,692	155
	Da Bikini Expertu	1,739	90
	El Carnevale	7,931	398
	Merced do Valle	1,636	28
	Paintho da Gama	5,090	143
	Roba di Piel	35,984	570
	<b>Total</b>	<b>61,182</b>	<b>1,609</b>
<b>Total</b>		<b>112,416</b>	<b>3,195</b>

## Trellis Chart

Trellis...

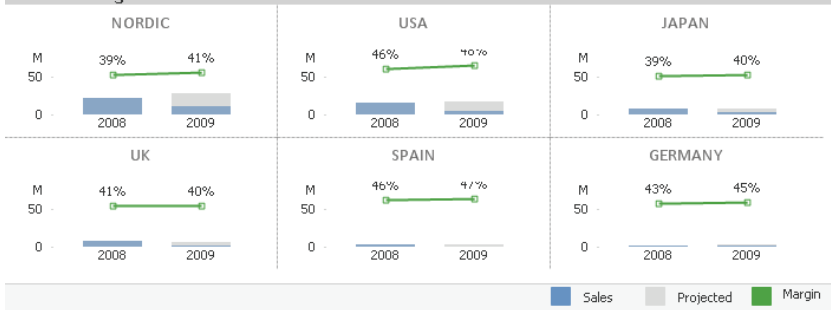
**Best:** Multi-dimensions with one or more measurements where the first dimension of the chart is used as an iteration for producing an array of charts. Accessed via a button on the **Dimensions** tab of the chart object (New in QlikView 9.00)

Examples:

- Comparisons — Product sales and margin
- Dimensional Iteration — Annual sales YTY by region

Sales and Margin 2008 vs 2009

XL



## Sparklines

Mini Chart Settings

**Best:** New in version 9.00, these mini charts display the result of an expression as a small chart in the cell of a QlikView table.

Examples:

- Snapshots — Trend analysis
- Comparisons — Summary dashboards

Regional Scorecard										XL
Region	Sales EUR 2009	Ranking 2009	Sales EUR 2008	% 2008 - 2009	Sales Trends 2008 - 2009	Budget EUR 2009	Budget EUR 2009	% Sales vs Budget	Sales vs Budget 2009	
<b>Total</b>	<b>21,421,961</b>		<b>58,279,041</b>	<b>37%</b>			<b>66,043,534</b>	<b>32%</b>		
NORDIC	10,237,751		22,633,998	45%			25,394,817	40%		
USA	5,211,325		16,394,030	32%			18,905,175	28%		
JAPAN	2,390,335		7,386,439	32%			8,900,320	27%		
UK	1,925,049		7,404,419	26%			6,630,265	29%		
GERMANY	934,179		2,100,962	44%			2,759,447	34%		
SPAIN	723,323		2,359,194	31%			3,453,510	21%		



## Introduction to Dashboard ▪ Analysis ▪ Reports – DAR

Different users have different needs. This section concerns providing tools and methods for different user communities within an organization. Every QlikView application can be structured to fulfill user's needs for three types of tools

- **Dashboards** for quick access to critical metrics
- **Analysis** tools for digging deeper, and
- **Reports** for a structured, predictable presentation of key metrics and information

This section considers these three areas and how they are implemented with QlikView.

### Dashboards

Dashboards are designed to provide the quick overview that decision makers need to oversee the well-being of their operational responsibilities, as well as giving them the chance to see and act on opportunities. They might focus on high-level measures of performance and forecasts, or more mundane but no less important metrics and indicators.

Included might be measures of

- Year-to-Date versus Last-Year-to-Date Sales, Profits, Production, Office Visits, etc.
- Financial Indicators
- Sales office comparisons
- Profitability

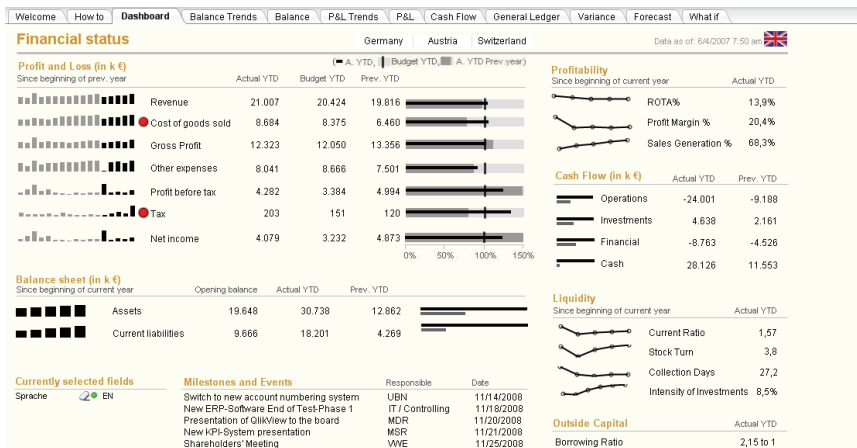


Figure 16. Example of a financial dashboard page in QlikView.

## Analysis

Analysis is the broader work that comes from guidance obtained from the dashboard. It might take a particular metric from the dashboard, Revenue, for example, and expand it out into tools for additional understanding. This might include

- Key Performance Indicators (KPIs)
- 80/20 Rules
- Actual, Budget and Forecast
- Sales data by product segments

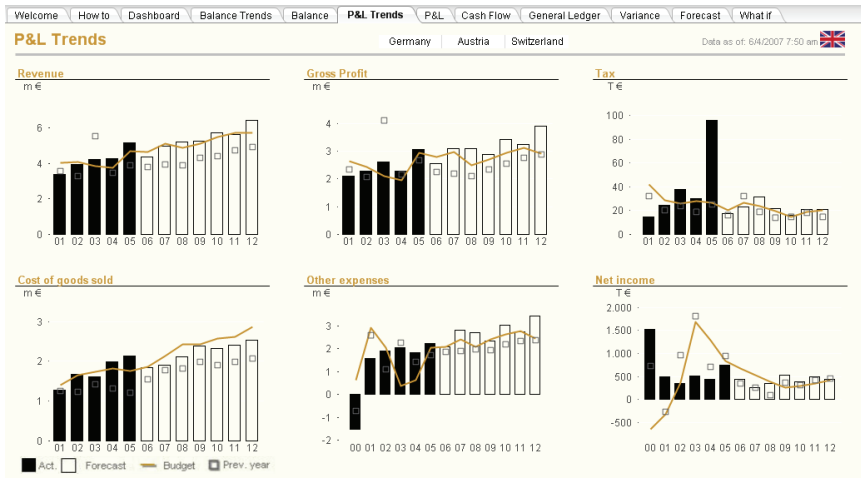


Figure 17. Example of a financial analysis page in QlikView, showing KPIs

## Reports

Traditionally, reports are information retrieved from a table or query in a preformatted, structured way. Examples of financial reports include:

- Balance Sheet
- Profit & Loss Statement
- Invoice Details
- Overdue Accounts Receivables

Welcome   How to   Dashboard   Balance Trends   <b>Balance</b>   P&L Trends   P&L   Cash Flow   General Ledger   Variance   Forecast   What if									
Germany   Austria   Switzerland									
Data as of: 6/4/2007 7:50 am									
<b>Balance</b>									
<b>Period</b>									
Jan-2006	Jan-2007								
Feb-2006	Feb-2007								
Mar-2006	Mar-2007								
Apr-2006	Apr-2007								
Mai-2006	Mai-2007								
Jun-2006	Jun-2007								
Jul-2006	Jul-2007								
Aug-2006	Aug-2007								
Sep-2006	Sep-2007								
Oct-2006	Oct-2007								
Nov-2006	Nov-2007								
Dez-2006	Dez-2007								
<b>Overview</b>									
Group		Balance Sheet Group	Account Group	Account Description	2007 Opening balance value	2007 Change	2007 Actual YTD		
			Accumulated Depreciation		-1,555,091	-470,925	-2,026,016		
		Fixed Assets	Fixed Assets	Furniture and fixtures	217,892	1,041,900	1,259,793		
				Equipment	1,068,840	1,754,777	2,823,617		
				Land	554,191	0	554,191		
				Total	1,840,924	2,796,677	4,637,601		
		Total			285,633	2,325,752	2,611,585		
		Current Assets	Current Assets		19,361,911	8,764,454	28,126,276		
		Total			19,361,911	8,764,454	28,126,276		
		Total			19,647,644	11,090,216	30,737,861		
			Cost and Expenses		0	10,479,744	10,479,744		
			Cost of Sales		0	8,684,025	8,684,025		
			Other Income and Expenses		-1,523,518	-915,434	-2,438,952		
			Provision for Income Taxes		0	203,426	203,426		
			Revenue		0	-21,007,143	-21,007,143		
		Total			-1,523,518	-2,559,379	-4,078,897		
		Current Liabilities	Current Liabilities		-9,246,319	-8,647,880	-17,896,198		
		Total			-9,246,319	-8,647,880	-17,896,198		
		Long-Term Liabilities	Long Term Liabilities		-417,881	113,042	-304,839		
		Total			-417,881	113,042	-304,839		
		Shareholders Equity	Shareholders Equity		-8,457,927	0	-8,457,927		
		Total			-8,457,927	0	-8,457,927		
		Total			-19,647,644	-11,090,216	-30,737,861		

Figure 18. Example of a financial report page in QlikView, showing a balance sheet.

## DAR Samples

QlikView offers many sample files for designing QlikView applications. These sample files are installed with QlikView Desktop.

## Conclusion • User Friendly Design

Obviously, user friendly design focuses on the user. Thus, doing proper discovery with your business client to determine critical success factors is essential to your success as a QlikView layout designer. The key to success is not only understanding the information your users require, but truly representing exactly how they will use it as best you can.

Once you have gotten that far, you need to remember to pick an approach and stick to it. Simplicity and consistency are essential.

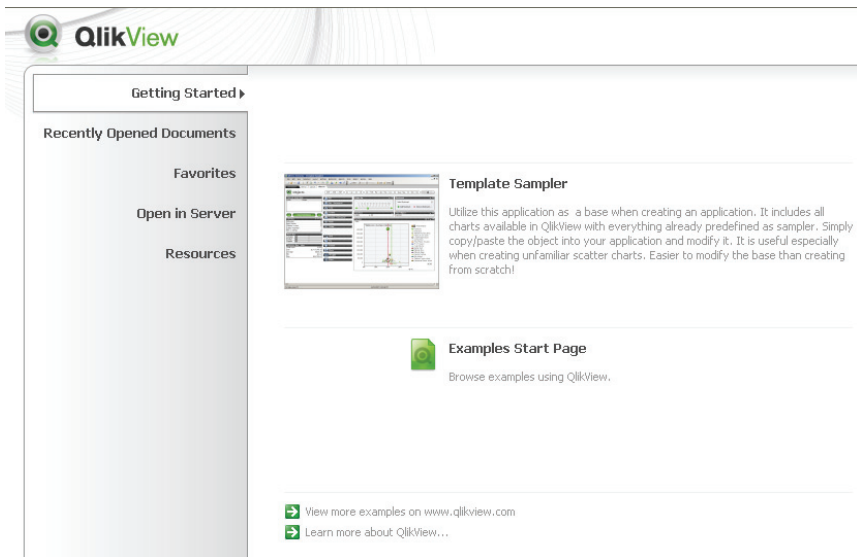
The following considerations can help your design:

- Easy to find what you are looking for: organize the QlikView application in support of its function. Resist the temptation to add objects because you can, because they are cool (this can be difficult to resist!)
- Repeated objects (Clear buttons, current selections boxes, statistics boxes, navigation) at the same position in every sheet
- Clean layout in charts. Less is often more.
- Hierarchy dimensions placed in order
- Color choices for color-blind

Remember, too, that it is very easy to change things in QlikView, so should you encounter obstacles, it is usually better to build something even if you do not follow all the rules to do it, and fix it later.

If you are interested in design and information resources, please look at the recommendations in the **Suggested Reading** section.

Remember, too, to access the QlikView **Download examples** link and the **Learning Center** for additional examples and downloads. Once again, these are available on the **Start Page** when you launch QlikView, as below.



### 3 USING QLIKVIEW DESKTOP

#### Objectives

- Prepare your training environment
- Navigate in QlikView
- Explore QlikView menus and toolbars

This chapter introduces QlikView Desktop for layout designers and shows you how to launch the software on your computer. You will be introduced to key design concepts in QlikView and will learn the basics of QlikView navigation. You will also receive an overview of the different menus and toolbars. For complete coverage of the QlikView menus and toolbars, you can refer to both the QlikView Reference Manual and the Online Help.

**Note:** If you did the “Complete” installation of QlikView and followed the default settings, the QlikView Reference Manual PDF file is located in:

**C:\Program Files\QlikView\Documentation\Reference Manual.pdf**

The Online Help is available from the **Help** menu.

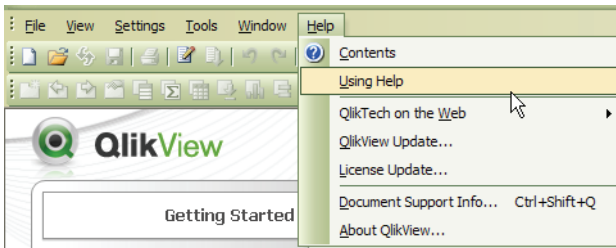


Figure 1. Accessing QlikView’s Online Help

#### Starting QlikView

QlikView Desktop is a Windows application. Although you can make changes to your layout and design using QlikView clients, this course focuses on the QlikView Desktop. To start QlikView Desktop, click on it from your Windows Start Menu or create a shortcut to place on your Windows Desktop or Taskbar.

- 1 Start QlikView. When the program has loaded, click on the **Getting Started** tab to display the *Examples* area, if it is not already visible.



Figure 2. The QlikView Start Page, Getting Started tab

The **Getting Started** tab contains information and links that can help you explore QlikView. This includes direct links to selected demo examples, a link to the QlikView demo example folder on your local computer and links to selected resources at [www.qliktech.com](http://www.qliktech.com).

The **Recently Opened Documents** tab contains a list of recently opened documents and web pages. Just click on one of them to re-open it.

**Tip:** by right-clicking on a document in the **Recently Opened Documents** list, you gain access to a menu with the following useful commands:

**Open "document" Without Data:** Opens the document but skips table and field data. What you get is a layout with all sheets and sheet objects in place but empty. This feature can be useful, for example, for opening corrupted documents or for avoiding long waits when opening very large documents for a small change in the layout (of course, you will need to re-run the script to repopulate the document after the changes).

**Open "document" and Reload Data:** Opens the document and performs an immediate reload from the source data.

**Browse Documents in Folder:** Opens the folder containing the document in the list.

**Remove "document" From This List:** Removes the document from the list of recently used documents. The actual document file remains unchanged where it resides.

The **Open in Server** tab contains a list of recently used QlikView Servers and an easy-to-use interface for connecting to any other QlikView Server. Once you have selected a QlikView Server, QlikView will connect to it and show a list of available documents, which can then be opened with a single click. We will not use the **Open in Server** tab in this course.

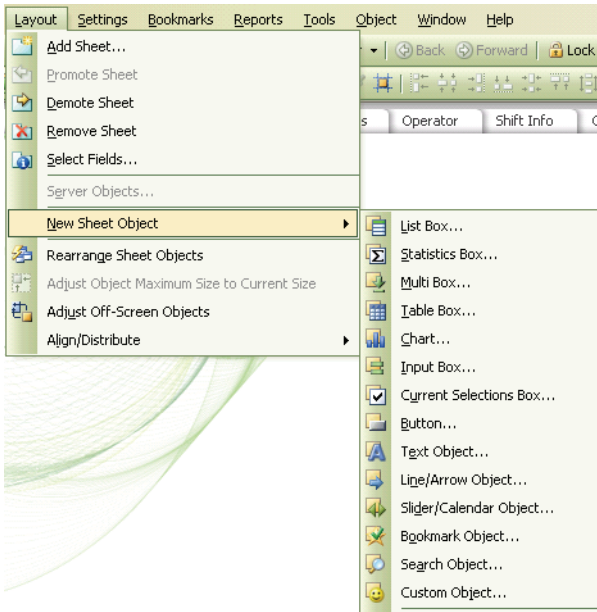
## Basic Layout and Navigation

Remember, a QlikView file contains everything the user needs to perform meaningful data analysis, including the data itself, the load script and all the layout information, objects and sheets defined by the QlikView layout designer.

### Basic Layout

Remember, the sheet is the basis for layout in QlikView. A QlikView document can have one or more sheets on which the sheet objects are placed. Each sheet can contain many sheet objects. The sheets have no influence on the logic of the data structures - if two fields are logically connected, it does not matter if they are located on the same sheet or on different sheets. The logical result when making selections will be the same. That said, sheets can be ordered in such a way as to present the appearance of a logical progression.

Sheet objects are at the heart of this course. They include list boxes, table boxes, multi boxes, statistics boxes, current selections boxes, many different types of charts, text objects, buttons and sliders, and others.



*Figure 3. The Sheet Objects Menu*

In some cases it might be advantageous to remove the sheet tabs and provide alternative methods of navigation. This is possible, but not covered in this course.



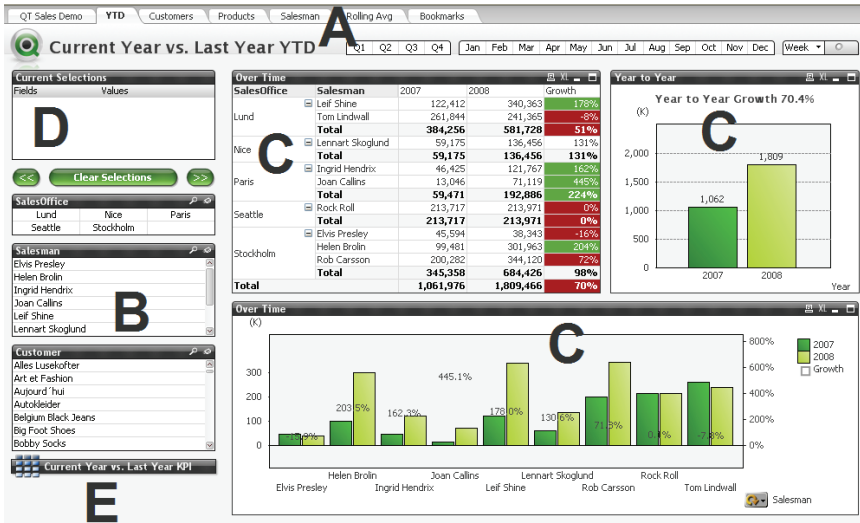


Figure 4. The Basic Components of a QlikView Page — A: Tabs, B: List Boxes, C: Active Charts, D: Current Selections Box, E: Minimized Charts

Before we go any further, we will take a moment to prepare our development environment in QlikView.

## Basic Navigation

Since QlikView is a Microsoft Windows application, standard Windows menus and toolbars are used to navigate a QlikView document. Detailed information about each menu item and toolbar icon can be found in the QlikView Reference Manual and the Online Help.

The sheet is the basis for navigation in QlikView. All sheets have tabs attached to them labeled with the sheet name. Clicking on the tab activates the sheet. If the **Sheets** toolbar is active you may also activate a sheet by selecting it in the toolbar dropdown. Toolbars are activated on the **View** menu.

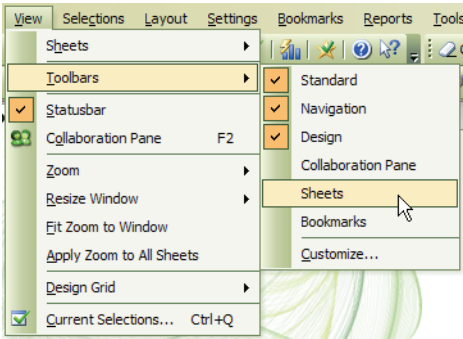


Figure 5. View Menu Toolbars

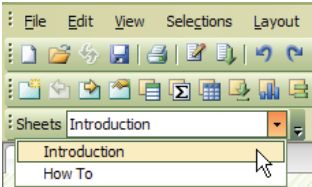


Figure 6. The Sheets Toolbar dropdown



## EXERCISE – SETTING UP YOUR ENVIRONMENT

### Do:

- 1 Navigate to the c:\QlikViewTraining\Designer\Chapter3 directory and open the **QVDesigner1\_Chapter3.qvw** file, or, if you plan to do all the exercises in a linear progression, open the **QVDesigner1\_Student.qvw** file and continue to use it in subsequent chapters. This file is located in the c:\QlikViewTraining\Designer\ directory. Course files and data will still be accessed in the chapter directories.
- 2 Save a copy of the file to preserve the original in case you want to start again from the beginning later. Do this by using the **File | Save As** command. There is also a QlikView file ending in “\_Solution.qvw” containing the completed exercise for your reference.
- 3 In many environments, consideration should be given to the amount of screen real-estate a QlikView application can use. Some organizations might have standards around the display resolution to be used when deploying applications. QlikView provides tools to address these requirements. Explore the **View | Resize Window** command to set the default value

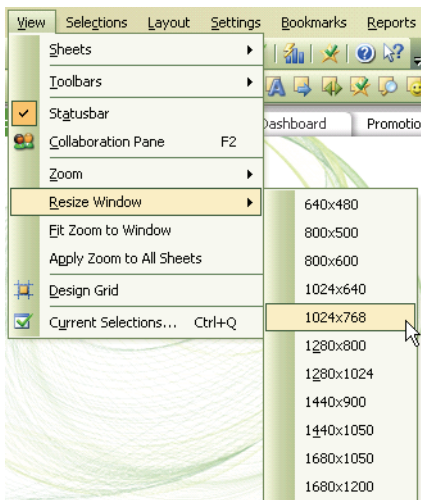


Figure 1. Use **Resize Window** to set the desired resolution

- 4 You can also manipulate the size of individual sheets using the **View | Zoom** command and **Apply Zoom to All Sheets**. Experiment with the **Zoom** command in the **QVDesigner1\_Chapter3.qvw** file. Remember,



you can always return to the original settings by selecting **Zoom | 100%** for any sheets you have modified, or you can select **Apply Zoom to All Sheets** to set every sheet to the level of the current sheet.

- 5 Take this opportunity to activate the toolbars of your choice for the class. At minimum, you should use the **Standard** and **Navigation** toolbars. Note, too, that the toolbars can be moved, floated and docked by clicking and dragging on the dotted line to their far left. Hold down the left mouse button and drag to any position you like. The toolbars can be docked to any side of the QlikView application window. All toolbars are completely customizable and may contain any of the available command buttons. Experiment with toolbars to obtain a good working environment. Obviously, you can change it later, if you so desire.



*Figure 2. Moving a toolbar by clicking and dragging on the dotted line to the far left*

- 6 Go to the **Settings | User Preferences** menu and navigate to the **Save** tab. Configure this tab for maximum backup by checking the settings, as below:



**Note:** Feel free to experiment with these settings. Remember that the original **QVDesigner1\_Chapter3.qvw** file can be used if you have problems and want to start fresh. Just be sure if you open it to save it immediately with another name, as instructed in the exercises.

## 4 SHEETS AND SHEET OBJECTS

### Objectives

- Create a sheet, name and move a sheet
- Place objects on a sheet
- Copy objects between sheets

This chapter covers the basic architecture of a QlikView file, the sheet. A QlikView document requires at least one sheet on which sheet objects are displayed. In this chapter, you will create, name and move a sheet, and also place basic objects on a sheet, as well as copy objects between sheets. Remember, even when several sheet objects have been placed on several different sheets, all sheet objects are still connected by the underlying QlikView associative logic.

### Sheet Basics

This section of the course presents the basic points of creating and modifying sheets.

#### Create Sheet

To keep the layout clear, you should avoid placing too many objects on a single sheet. Create new sheets to accommodate more sheet objects.

If you want the new sheet to hold several objects that are already displayed on another sheet you can make a copy of this existing sheet by right-clicking it and choosing **Copy Sheet** from the **Sheet** menu, or you can add a new sheet and copy specific sheet objects to the new sheet from existing sheets.

To create a new sheet, choose **Add Sheet** from the **Layout** menu, or click on the **Add Sheet** icon in the design toolbar.

A new sheet is created and given a default name.

The *Sheet Title* can be set in the **Sheet Properties | General** page. To open this dialog, right-click the new sheet and choose **Properties** from the **Sheet** menu, or select **Sheet Properties** from the **Settings** menu.

#### Sheet Properties

You can adjust any of the sheet properties, either by right clicking in a blank area of the sheet and selecting **Properties** from the dropdown menu or via the **Settings** menu.

## Sheet Order

You may rearrange the order of the sheets by right-clicking any tab and choosing **Promote (<—) Sheet** or **Demote (—>) Sheet** from the object menu.

**Tip:** For easier sheet reordering (to promote and demote sheets), use the buttons available on the design toolbar:



Figure 1. Toolbar Icons: Create, Promote and Demote Sheets, Sheet Properties

## Sheet Delete

A sheet can also be removed by placing your cursor over the sheet tab or in a blank area of the sheet, right clicking and choosing **Remove** from the menu. Remember, deleting a sheet removes any objects it contains, as well.

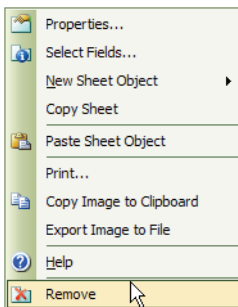


Figure 2. Using the Right-click menu to delete a sheet.

## Add Objects

To create list boxes on a sheet and show fields and their values, click **Select Fields** in the **Layout** menu. This opens the **Fields** page in the **Sheet Properties** dialog. This dialog page is also displayed when you right-click the sheet and choose **Select Fields** from the **Sheet** menu.

You can move fields between the columns by selecting them and using the buttons **Add >** or **REMOVE**. By doing a **SHIFT**-click, multiple, contiguous fields can be selected. By doing a **CTRL**-click, multiple, non-contiguous

fields can be selected. Clicking the **Add All >>** button moves all fields to the **Fields Displayed in Listboxes** window. Accept the changes by clicking **OK**.

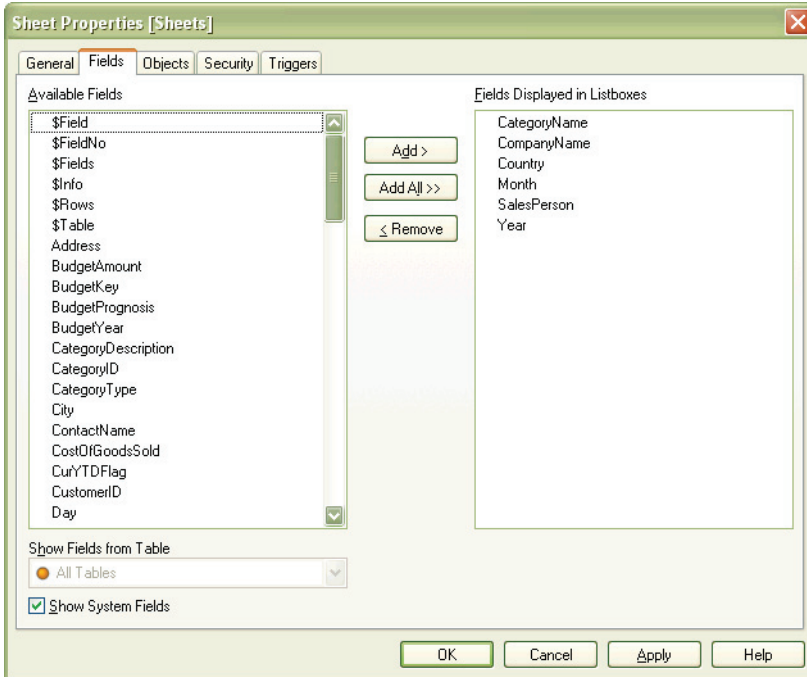


Figure 3. Sheet Properties: Fields Tab

**Note:** a single field (list box) can be displayed several times on the same sheet and can also exist on different sheets of the same QlikView document simultaneously.

## Sheet Objects

Sheet objects include all the various types of objects available to you as a QlikView layout designer. Most of these objects will be covered in either this or subsequent designer courses. For now, it is sufficient to list them. Sheet objects include:

- List Boxes

- Statistics Boxes
- Multi Boxes
- Table Boxes
- Charts
- Input Boxes
- Current Selections Boxes
- Buttons
- Text Objects
- Line/Arrow Objects
- Slider/Calendar Objects
- Bookmark Objects
- Custom Objects
- System Tables

**Note:** for future reference, the System Table sheet object is actually a pivot table chart pre-built to include System fields.

The Sheet Objects menu was shown previously. It is also possible to choose sub-types for some sheet objects. For instance there are 12 different chart types available.

### Activating Sheet Objects

Most sheet objects can be activated by clicking the title caption. Normally this results in the caption changing color or hue. If the sheet object lacks a caption, it will still have a click-sensitive area located along the upper edge, with the same functionality.

### Moving Sheet Objects on a Sheet

To move a sheet object to another place on the same sheet:

- 1 Click+hold on the sheet object's caption.
- 2 Drag the sheet object to the desired position.

### Resizing Sheet Objects


To resize a sheet object:

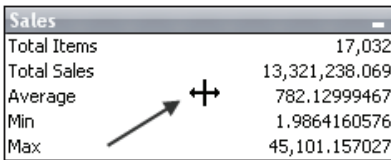
- 1 Hover the cursor along the sheet object's frame or preferably at a corner of the sheet object.
- 2 When a double-headed arrow appears, click+hold and drag the frame until the sheet object is the size you desire.

Certain objects size differently, for example, multi boxes, the different table types and statistics boxes. These cannot be resized by dragging further than



to eliminate any horizontal scrollbars. Instead, the column separators can be used.

Hover the cursor inside a statistics box or multi box until you find the invisible column separator. Its position is identified when the mouse pointer changes to a double-headed arrow with a vertical bar (  ). You may click+hold and drag the separator to the desired column width. If you double click the separator, the column will be adjusted to the width of the longest (widest) data item in that column.



Sales	
Total Items	17,032
Total Sales	13,321,238.069
Average	782.12999467
Min	1.9864160576
Max	45,101.157027

### Copying Sheet Objects on the Same Sheet

To copy sheet objects:

- 1 CTRL-click+hold the caption of the sheet object
- 2 Drag the copy of the sheet object to the desired position
- 3 Release the CTRL and mouse buttons. (Remember to keep holding down the CTRL key during the entire operation)

This method creates identical copies (clones) of the sheet object.

### Moving or Copying Sheet Objects to Another Sheet

To move a sheet object from one sheet to another:

- 1 Click+hold the sheet object's caption
- 2 Drag the sheet object to the tab area and drop it on the target tab

The sheet object can now be found on the selected sheet in exactly the same location as it was on the original sheet.

To copy a sheet object from one sheet to another:

- 1 CTRL-click+hold on the sheet object's caption
- 2 Drag the object to the tab area and drop it on the target tab

A copy of the sheet object has now been created on the selected sheet in exactly the same location where it was on the original sheet.

### Alternative Keyboard Commands

The following key combinations can be used for editing the layout:

- CTRL +X (cut)
- CTRL +C (copy)
- CTRL +V (paste)

The arrow keys can be used to move sheet objects, giving you a more precise way to position sheet objects than can be achieved with a mouse.

To use this method:

- 1 Click the sheet object's caption.
- 2 Hold down CTRL and depress an arrow key to move the sheet object one pixel at a time in the desired direction.
- 3 Hold down CTRL + SHIFT and depress an arrow key to move the sheet object 10 pixels at a time in the desired direction.

Note: When using the keyboard copy and paste commands, be aware that the pasted copy of an object will probably be placed directly on top of the original object if it is pasted to the same sheet. This can make it appear that **no** copy was made. Click and drag the top (new) object to confirm.

### Working with Several Sheet Objects at the Same Time

Most changes to the layout can be made with more than one sheet object active.

To have one or more sheet objects active at the same time, do one of the following:

- 1 The most convenient way to activate several sheet objects is to do a SHIFT-click on the captions of all the desired sheet objects.
- 2 You can activate all sheet objects on the sheet at once by choosing **Activate All** from the **Edit** menu (or doing a CTRL+A).
- 3 Or you can click and drag a rectangle around a group of sheet objects to activate them all at once, but this method may prove difficult in practice, since sheet objects are not always aligned or in close proximity to one another and the rectangle must completely encompass the entire outline of all sheet objects you want to select.

### Removing Sheet Objects

To remove a sheet object

- 1 Right-click the sheet object.
- 2 Choose **Remove** from the **Object Menu**.

Alternatively:

- 1 Click the caption of the sheet object to activate it.
- 2 Press the DELETE key to remove the sheet object.

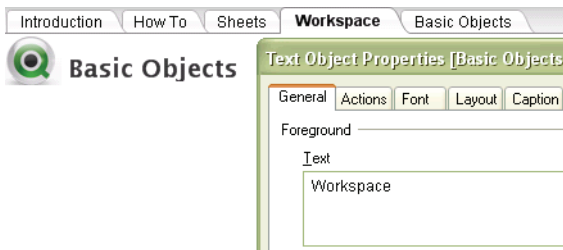
Obviously, multiple sheet objects can be selected using the techniques described above, and then removed using either the DELETE key or **Object Menu | Remove**.



## EXERCISE – CREATING A WORKSPACE

### Do:

- 1 Navigate to the c:\QlikViewTraining\Designer\Chapter4 directory and open the **QVDesigner1\_Chapter4.qvw** file, or, if you are doing all the exercises in a linear progression, open the **QVDesigner1\_Student.qvw** file and continue to use it in subsequent chapters. This file is located in the c:\QlikViewTraining\Designer\ directory. Course files and data will still be accessed in the chapter directories.
- 2 Save a copy of the file to preserve the original in case you want to start again from the beginning later. Do this by using the **File | Save As** command. There is also a QlikView file ending in “\_Solution.qvw” containing the completed exercise for your reference.
- 3 Create a new sheet.
- 4 Promote the sheet so that it appears between the *Sheets* and *Basic Objects* sheets.
- 5 Re-name the sheet by re-labeling the tab, calling it *Workspace*. For extra-credit, copy the text object sheet title from the *Basic Objects* sheet to your new sheet and change it to *Workspace*



- 6 Open the View menu and select **Design Grid**.

**Tip:** the Design Grid allows you to easily size and place objects even with their captions turned off.



- 7 Copy the *Month*, and *Year* list boxes from the *Basic Objects* sheet to the *Workspace* sheet.
- 8 Copy the *Day* multi box from the *Basic Objects* sheet to the *Workspace* sheet.
- 9 Add list boxes for *Salesperson* and *Customers* to the *Workspace* sheet.  
Note: use the field *CompanyName* and label it *Customers* (Note: the List box object will be covered in detail in a subsequent chapter. You may skip this step now, if desired.)
- 10 Re-position the list boxes on the sheet
- 11 Experiment with creating a sheet and copying the entire contents of an existing sheet to it.
- 12 Turn off the **Design Grid**
- 13 Save your work.

## 5 THE LIST BOX

### Objectives

- Understand the versatility of the list box
- Make a query using a list box
- Understand list box properties

This chapter presents the most common QlikView object, the list box, and explains some of its most important uses in a QlikView application. The list box is also used here to demonstrate one of the simplest ways of making a query in QlikView. The chapter concludes with a discussion of the **Properties** of a list box, followed by a short exercise.

### Introduction

The list box is the most basic sheet object on the screen. It contains a list of all the possible (distinct) values of a specific field. In a list box you often make selections and look at logical connections and associations.



*Figure 1. List box containing the values of the SalesPerson field*

### The Importance of the List Box

The list box illustrates the most important aspect of QlikView's revolutionary power to transform the way analysis is done today. If you understand the list box, you will have gone a long way toward understanding QlikView.

Since the list box contains a list of all possible values of a specific field loaded from the source data, each row in the list box can represent several records in the loaded table, all with identical values of the field the list box is displaying. Selecting one value in the list box may, thus, be equivalent to selecting several records in the loaded table.

It is this selectability that makes the list box so important and so powerful.

### Making a Query

To make a query using a list box, all you need to do is click. In the example below, compare the two screens to see the impact of simply clicking *Helen Brolin* in the *SalesPerson* list box.

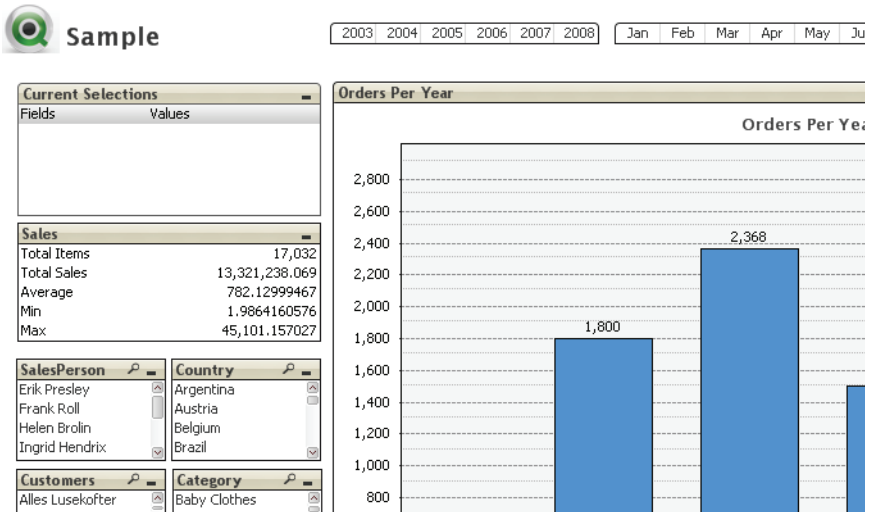


Figure 2. The Sample sheet with nothing selected

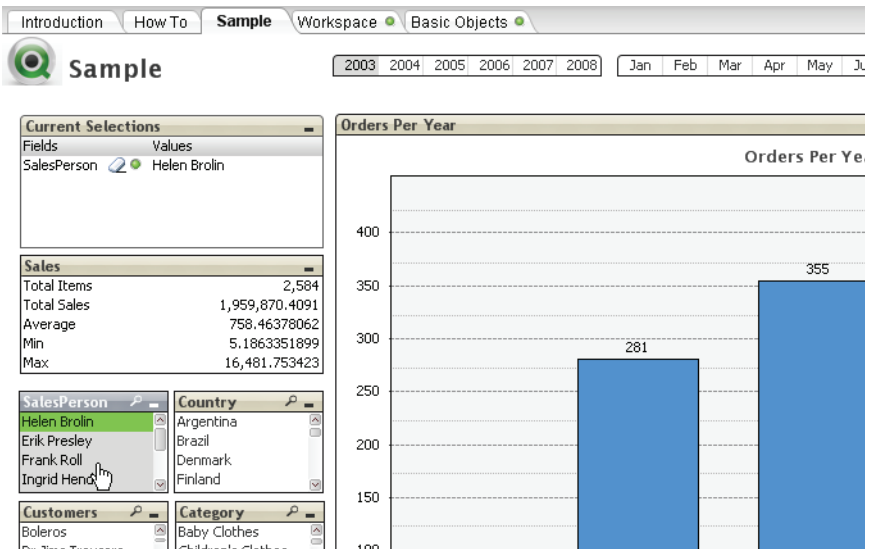


Figure 3. Clicking on Helen Brolin in the SalesPerson list box changes everything

### What Happened?

Please notice that the list boxes for *Customers* and *Contact* changed to show only *Helen Brolin*'s accounts. The list boxes at the top of the screen representing time (*Month*, *Year* and *Day*) have also changed to show the dates when *Brolin* made sales. Finally, the selection count of *Customers* information in the bottom center of the screen, as well as the *Orders Per Year* chart, have also changed to reflect only those sales associated with *Helen Brolin*.

In other words, the data cell you just clicked turned green, whereas all the other data cells in the list box turned gray. Changes occurred in the other list boxes as well. Data cells that correspond to your selection remain white, while everything else is grayed out.

When data cells are gray it means that the data is incompatible with the selected data. QlikView does not associate these data values with your selections. They are excluded.

Thus, we can draw many conclusions from this simple query.

### Performing a Simple Search

List boxes are searchable. To enter a search string, click on the list box header (the caption) and then simply type the search string. The search string will appear in the pop-up search box. As a result, QlikView will display all the values of the selected field that match the criteria of the search string. When you press ENTER or click on one of the cells in the result, the value(s) become(s) selected.

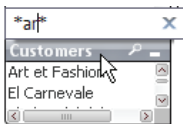


Figure 4. Searching for customers with the letters "ar" in their name

**Note:** By keeping the CTRL key depressed when pressing ENTER, the selections from the text search will be added to any previous selections.

The search box will close automatically when you hit ENTER, ESC, or click in the layout.

If several list boxes are active (SHIFT-click on their headers to make them active), they are all included in the text search. You cannot press ENTER to select the resulting value until there are optional values in only one of the active list boxes.

**Note:** If a selection has already been made, there are two ways in which a text search can be interpreted: either you search only among the optional values or you search among all values, i.e., you include the excluded values in the search. To set the search mode, you can either select or deselect **Include Excluded Values in Search** on the **General** page of the **User Preferences** dialog. This mode can also be set on certain individual sheet objects.

### Text search

The simplest way of searching is text search. QlikView will search for field values matching a text string that you type. When you start typing text, it will by default appear between two \* wildcard characters (see below), i.e., you will search for any field value containing the search text. You can remove either or both wildcard characters or provide different ones, such as a “?”, to change the nature of the search.

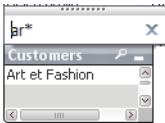


Figure 5. Searching for customers whose name begins with "ar" (by removing the leading asterisk)

Wild card characters may appear several times in the search string, regardless of their location:

- \* Any number of arbitrary characters
- ? Any single character

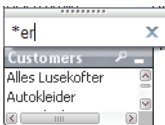


Figure 6. Searching for Customers whose names end in "er" (by removing the trailing asterisk)

Searches can also be used to exclude values. For example, if you needed to select all the values in the *Customer* field that did not end in “er” you could first perform a search for those values, and then choose **Select Excluded** by right clicking (while hovering over the list box) and choosing it from the drop down menu, as in the figure, below.



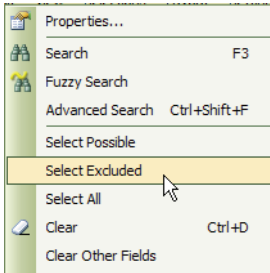


Figure 7. Select Excluded from the right click (cascade) menu of the list box

### Numeric Search

Numeric values can also be used in search criteria.

### Fuzzy Search

Fuzzy search compares and sorts all field values according to their degree of resemblance to the search string. A tilde " ~ " -character is displayed in front of the search string. Fuzzy search is especially useful where misspelling is an issue. It can also help you find values that are near-identical to each other.

### Using Expressions and Complex Searches

You can perform searches based on expressions by starting the search string with an equal sign = or greater than > less than <, etc.

## List Box in Action

### Multiple Selections in One List Box

You can select more than one value in the same list box:

- 1 To select several values in a sequence, click and hold the mouse button down, then drag over the values you wish to select.
- 2 To select several values that are not in a sequence, hold the CTRL key down and click the desired field values, one after the other.

Multiple selections within a single list box (i.e., in the same data field) are interpreted as a logical **OR** between the selections.

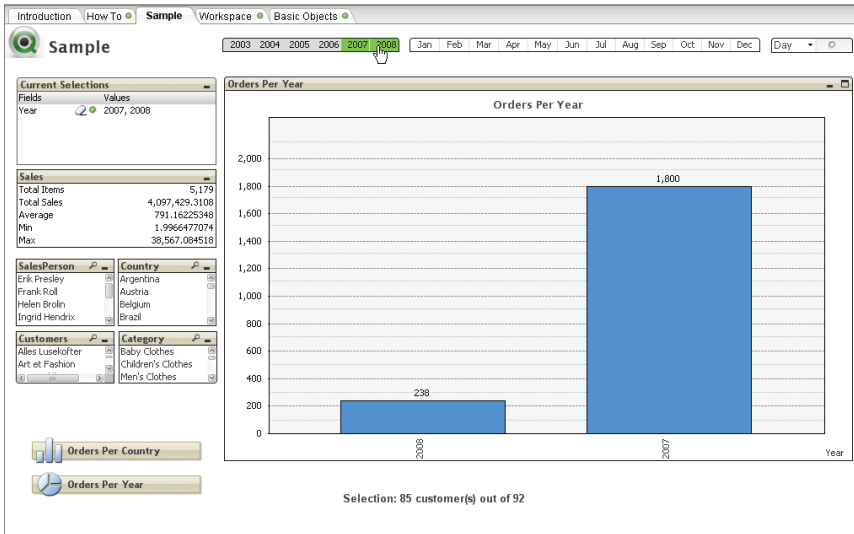


Figure 8. Interpreted as a logical OR between the selections listed in the Current Selections box in the upper left corner of the screen

## Simultaneous Selections in Several List Boxes

Selections can be made in multiple list boxes simultaneously. Simultaneous selections in different list boxes are interpreted as a logical **AND** between the selections. For example:

- 1 Make sure that you are still viewing the sheet *Sample*.
- 2 Clear all selections using the **Clear** button or select it from the **Selections** menu.
- 3 Select *2008* in the list box *Year*.
- 4 Select *Mar* in the list box *Month*.

This selects all sales made in **2008 AND** during the month of *March*.

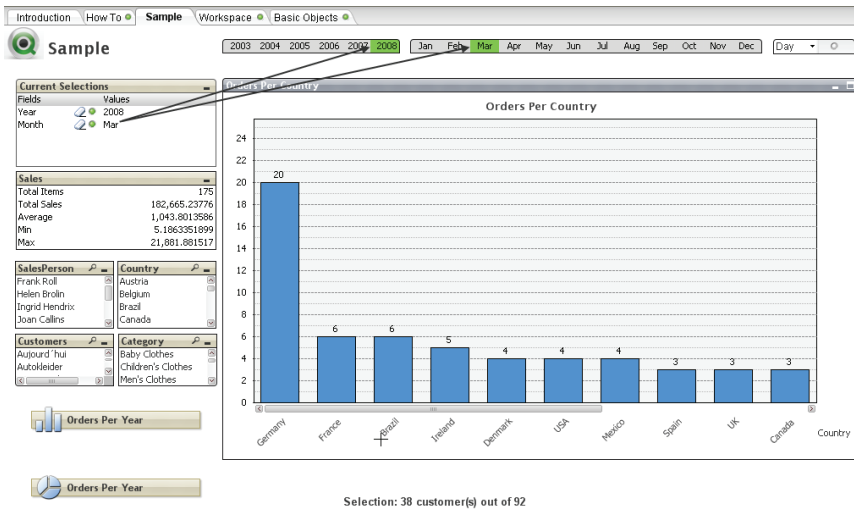


Figure 9. Simultaneous selections in two list boxes

## Clearing Selections

Selections can be cleared in many different ways, including the following:

- 1 Click a second time on your selected value to de-select it.
- 2 Select some other values from the gray area of the same list box. When you select data that is incompatible with your previous selections, the old selection is cleared.
- 3 Click the **Back** button in the toolbar. QlikView will store up to 100 selections in memory. Each click takes you back one-step.
- 4 Click the **Clear** button in the toolbar. All your selections disappear.



**Note:** Clicking on the **Clear** button applies the start selection of a QlikView document, which can be configured, as below. The drop-down menu offers the following options.

**Clear**

The start selection of a QlikView document. This command can also be invoked via the keyboard shortcut ctrl+shift+d.

**Clear all**

Clears all selections, excluding locked ones.

**Unlock and Clear all**

Unlocks and clears all selections.

**Set Clear State**

Sets the current selection as Clear State.

**Reset Clear State**

Resets Clear State to no selections.

- 5 Hover over your selection in the *Current Selections* box and right click **Clear** or click on the **Clear** button if it has been activated in the properties of the Current Selections box:

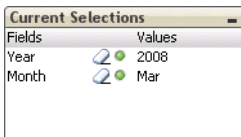


Figure 10. *Current Selections Box with Clear button activated*

## Locking and Unlocking Selections

### Locking

It is sometimes convenient to lock selections, i.e., to make them **Clear**-button proof. Locked selections are displayed in blue with yellow text. You might want to work with one year's worth of data, or focus on a particular sales region, for example, and not have to worry that pressing the **Clear** button would undo your selection status.

There are two methods for locking selections:

- 1 Make your selections in one or several list boxes.
- 2 Click the **Lock selections** button in the toolbar. All selections made in the list boxes are locked.



Or:

- 1 Make your selections in one or several list boxes.

- 2 Right-click in a list box where a selection has been made. This opens an object menu.
- 3 Choose **Lock** from the menu.

In this case, only the selected data in the active list box is locked. Selections made in other list boxes are unaffected. A selection that has been locked can only be cleared by one of the previously described methods, namely the **Back** command.

### Unlocking

There are two main methods for unlocking locked selections:

- 1 Click the **Unlock Selections** button in the toolbar. All locked selections in all list boxes are unlocked.



Or:

- 1 Right-click in a list box where a selection has been locked. The object menu opens.
- 2 Choose **Unlock** from the menu.

You have now unlocked all locked selections in the active list box. Locked selections made in other list boxes remain locked.

The only way that you can unlock and clear the selection with a single command is to choose **Unlock and Clear** from the **Selections** menu. Unlocking does not imply deselecting as well. After unlocking, the selection state remains in effect.

### A Note about Searches and Selections in other Objects

Making selections and searching for field values is not limited to list boxes. In QlikView, you can make selections and searches directly in any type of table and in multi boxes. You can also make selections directly in charts by clicking and dragging over the values. You will learn more about these capabilities in subsequent chapters.

### Beacons

Indicators (beacons) are colored dots that sometimes appear on tabs and in the right-hand corner of the status bar. Indicators are there simply to remind you of selections that have been made in fields that are not available on the sheet that you are currently viewing. Since all sheets of a QlikView document are fully interconnected, such selections will most likely affect what is displayed on the active sheet - even when they are not immediately apparent. This is the main reason for having indicators.

Selection indicators may also appear in the upper right-hand corner of the data fields in the QlikView tables: table boxes, pivot tables and straight

tables. This is a useful option as the selections in tables are not themselves color coded. The option is selected/deselected in the **User Preferences | Objects** dialog.

Selection indicators will appear in the current selections box as well as in the free-floating current selections text box, to distinguish between selected and locked values.

The color of the indicator follows the general color scheme of a:

- **green dot** for selected values
- **blue dot** for locked selections
- **red dot** for de-selected values in AND-mode (not common)



Figure 11. Beacons example

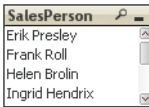
## Creating a List Box

Creating a list box is a simple process:

- 1 Create a new list box by choosing **New Sheet Object – List Box** from the **Layout** menu. You can also right-click in a blank area of a sheet and select **New Sheet Object – List Box** from the menu.
- 2 Select the field *SalesPerson*
- 3 Click **OK** to generate the list box.
- 4 You can adjust the width of the list box by clicking on the edge of the table with the mouse cursor, keeping the mouse button depressed and dragging the edge. By clicking on one of the four corners of the list box

instead, you can adjust its width and height simultaneously. The field name displayed as the column heading (caption) of the list box can be edited in the **List Box Properties | General** page.

After some adjustments, the List box could look like this:



*Figure 12. The finished list box*

## Properties of the List Box

This section shows the settings available for list boxes. When designing applications in QlikView, it is common to copy objects and manipulate their appearance and functionality by changing the object properties. Many of the settings found in list box properties are common to the various object types in QlikView. Consequently, this section is an overview of object properties, in general.

Throughout the course we will return to the **Properties** dialogs of objects to make changes. The single biggest thing to learn in QlikView might well be the different properties available for different objects and remembering the tabs to navigate to find them. Be assured, though, that the similarities far outweigh the differences. Once you are familiar with these main tabs, you will know the majority of the properties available for all objects, not just list boxes.

To review list box **Properties**, right-click on one and choose **Properties**.

## General Tab

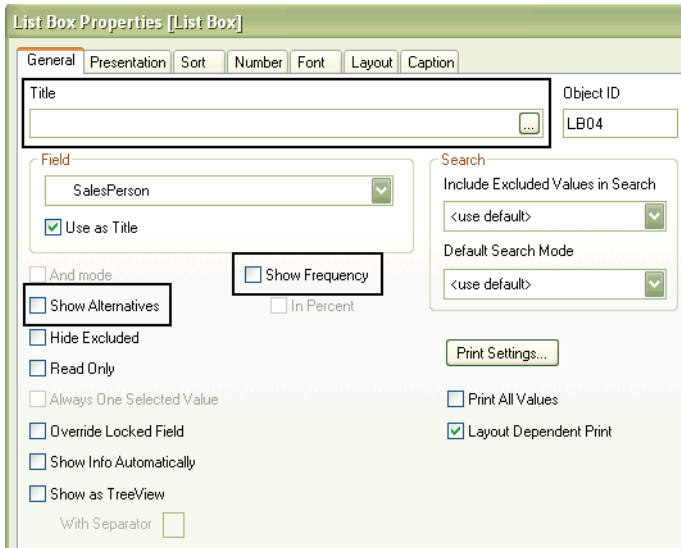


Figure 13. General Tab

Some of the more common settings are highlighted, above. Know, too that clicking on the **Help** button will bring up meaningful, context sensitive help.

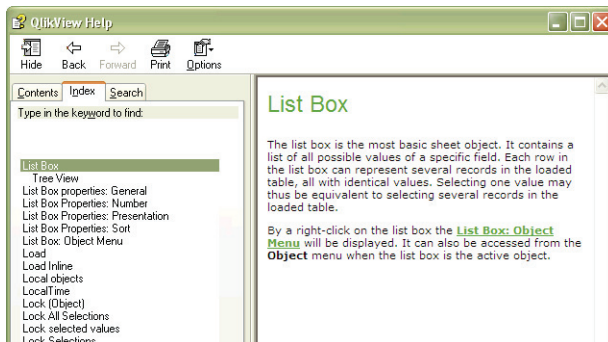


Figure 14. Example Help Screen

The **Show Alternatives** box Toggles whether a selection directly in the active field list box is to exclude the other values of the field or not. If **Show Alternatives** is checked, all values except the selected value will be displayed as



options, but may become excluded by association with selections in other fields.

Otherwise, all other values are shown as excluded by default. This option is not available for calculated fields.

Although there is significant impact to using the **Show Frequency** box, and, as such, this capability should be used with caution, a field represented in a list box with this selected will display the number of occurrences of the field value in the internal data structure. This can be especially useful when looking at system fields.



Field	Frequency
EmployeeID	4
BudgetKey	2
CustomerID	2
Office	2
OrderDate	2
OrderID	2
OrderLineKey	2
ProductID	2
SupplierID	2
Address	1

Figure 15. The system field \$Field showing Frequency

Although more relevant to the advanced section of the class, you should be aware, now, that list boxes can also be created based on the result of an expression, or can display the contents of a group of fields defined elsewhere.

The figures below display these two options.

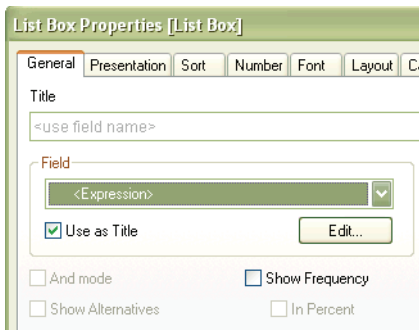


Figure 16. List Box, Expression

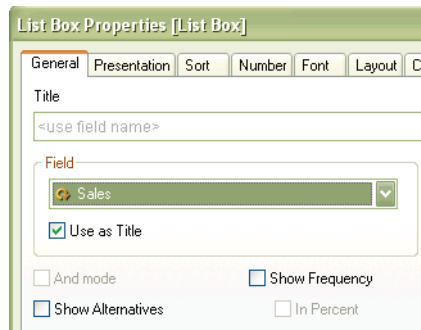


Figure 17. List Box, Group (Sales)

Since the available options in the **General** tab change slightly depending on the object type, we will return to it later in the course.

## Presentation Tab

The **Presentation** tab is used to manipulate the layout of the list box cells (the space occupied by each list box value) and to help determine the display of list box contents. Some of the more commonly changed settings on the **Presentation** tab are noted in the figure, below:

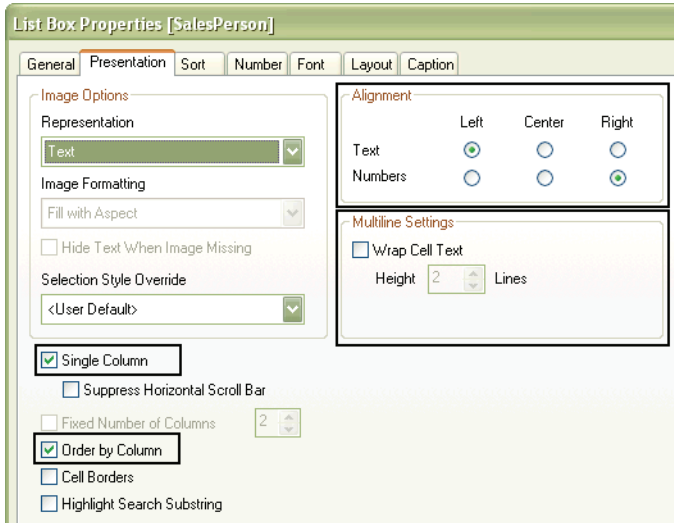


Figure 18. Presentation Tab

Note that list box data can be presented in **Single** or **Multiple** Columns with alignments adjusted for text and numbers.

## Sort Tab

The **Sort** tab is used to set the sort order of the values in the sheet object. Some sort options may not be available for some sheet objects. The sort options for list boxes are shown in the figure, below.

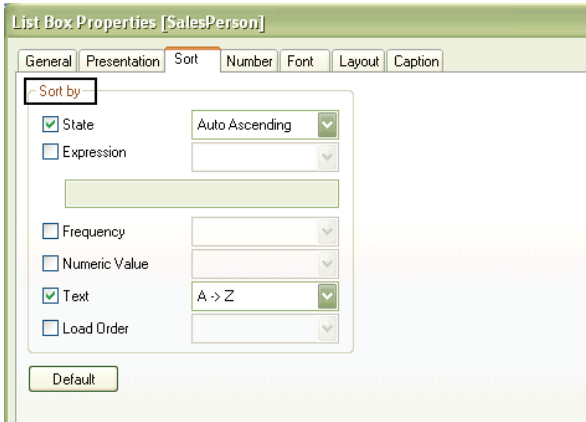


Figure 19. Sort Tab

### Number Tab

Each field has a default number format which can be set in the **Document Properties | Number** page. It is however possible to use a separate number format for an individual list box (sheet object). To do this, the alternative **Override Document Settings** box must be checked, and a number format in the tab control below can be specified.

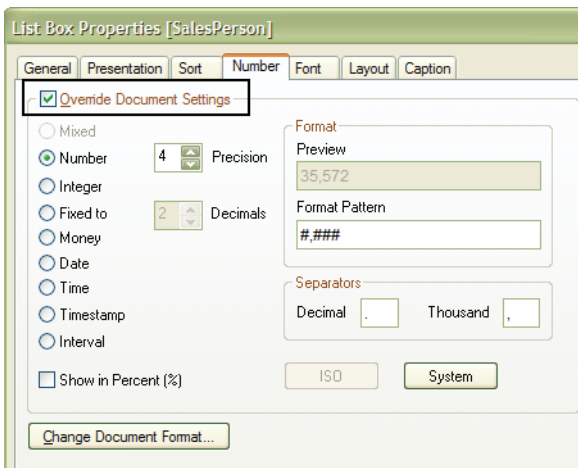


Figure 20. Number Tab

## Font Tab

The **Font** tab controls the **Font**, **Style** and **Size** to be used in the list box.

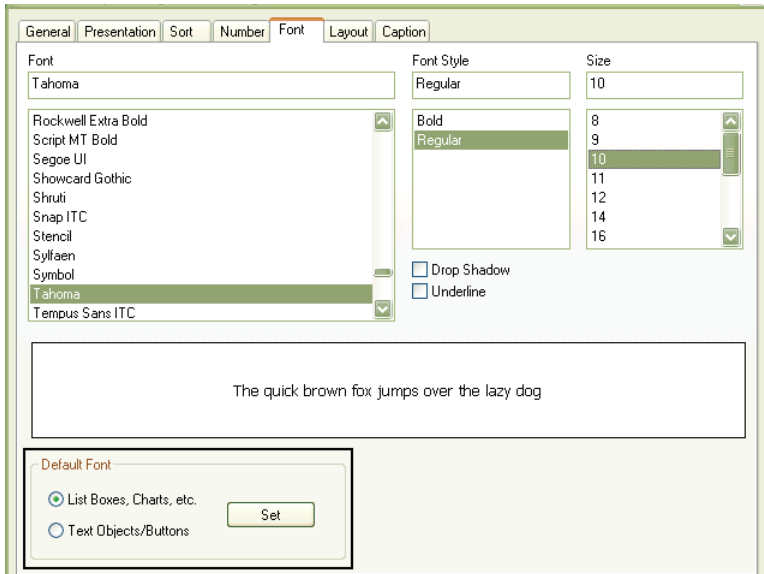


Figure 21. Font Tab

## Layout Tab

The **Layout** tab has many options. Note that a layout setting will apply to the current list box or object only if it is made from the **Properties** page of the list box or object. Alternatively, a layout setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

Some of the more important settings on the **Layout** tab include:

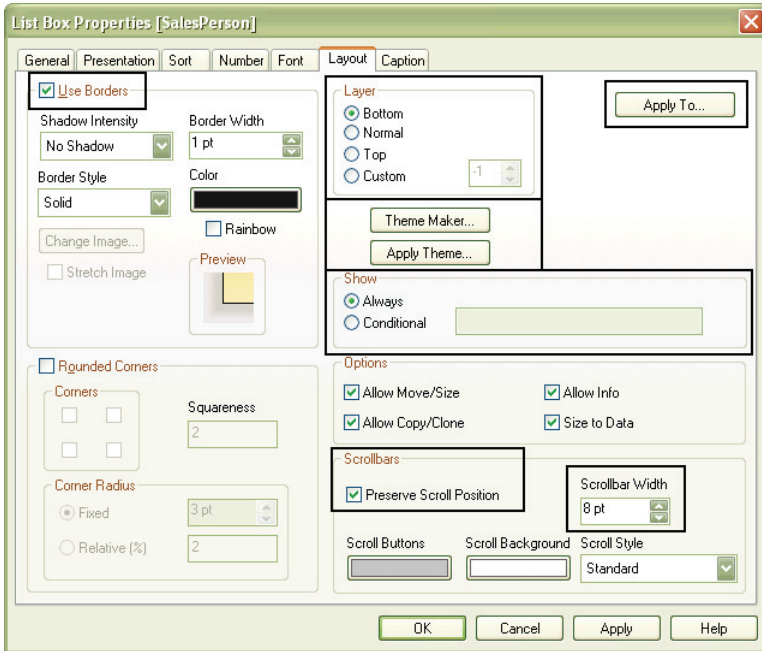
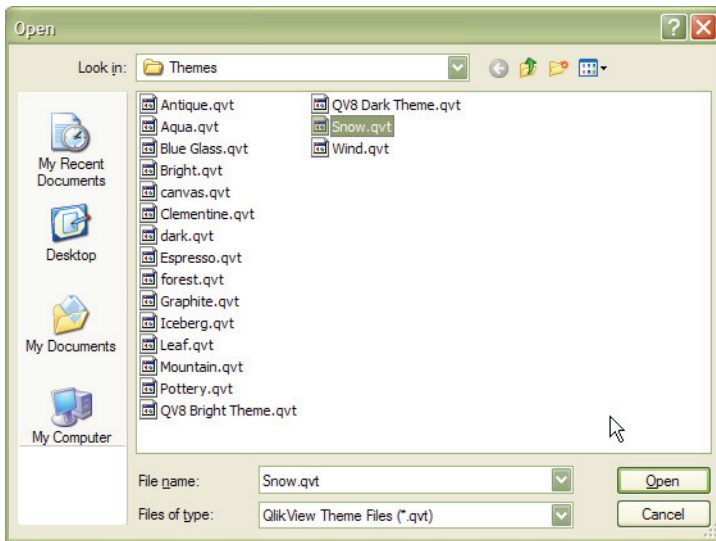


Figure 22. Layout Tab

Clicking on the **Apply Theme** button opens a dialog box, allowing the user to select a theme from a folder or network location.



*Figure 23. Available Themes, typically located in the Program Files\Qlik View\Themes directory*

## Caption Tab

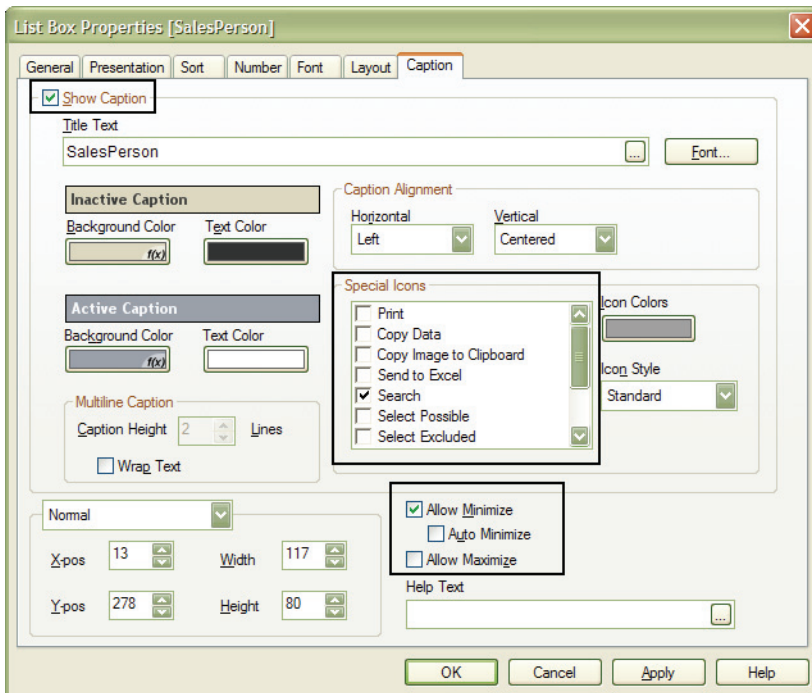
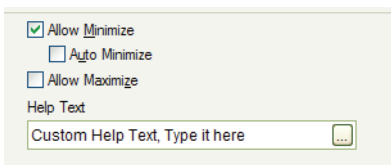


Figure 24. Caption Tab

**Help Text** can be added by clicking on the ellipsis icon to open the expression editor, or simply by typing into the box.



Remember, the contents of each of these tabs change, depending on the type of object you are working on. So far, we have focused on the properties of list boxes. Additional options on the **Object** Menu include:

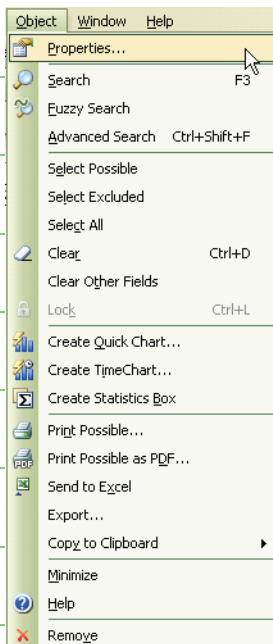


Figure 25. The Object Menu (with a list box selected)

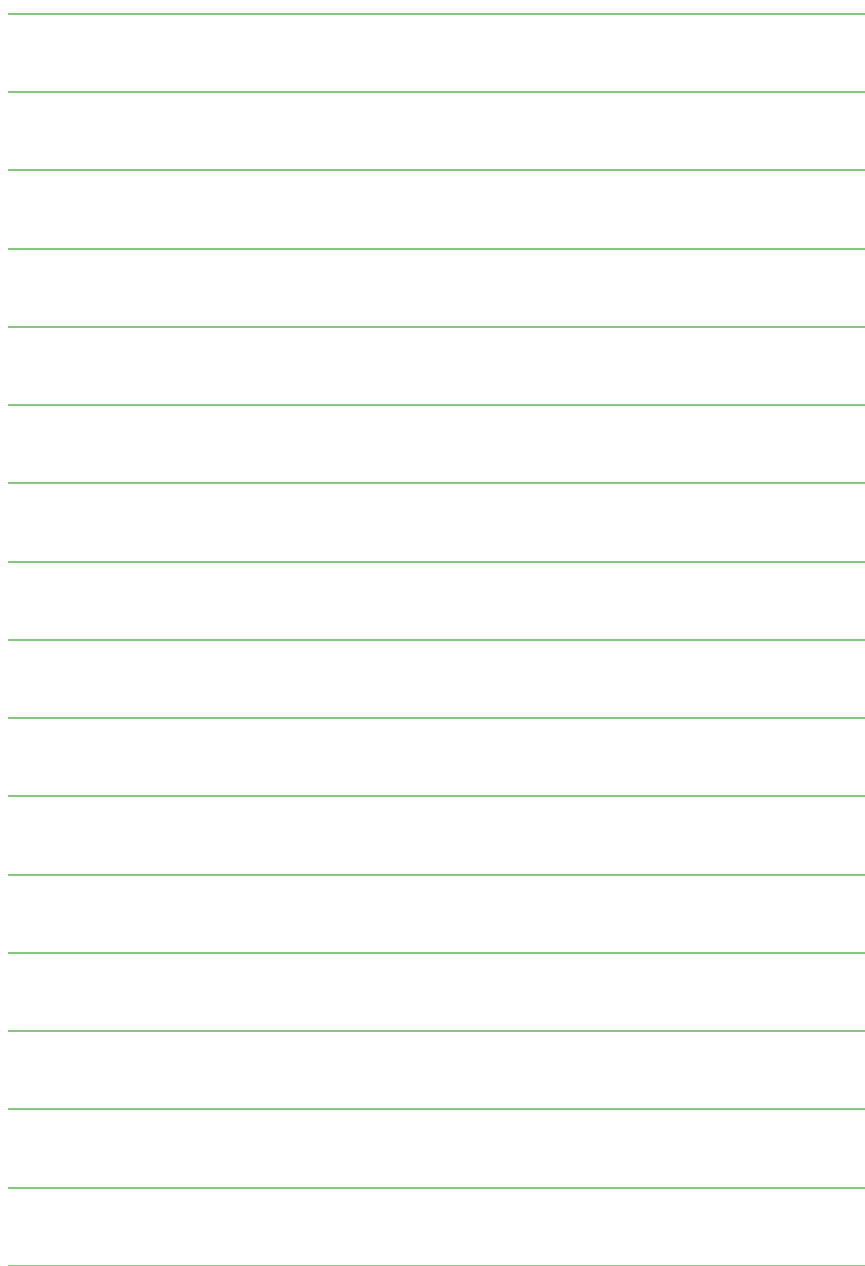




## EXERCISE – LIST BOXES

### Do:

- 1 Navigate to the c:\QlikViewTraining\Designer\Chapter5 directory and open the **QVDesigner1\_Chapter5.qvw** file, or, if you are doing all the exercises in a linear progression, open the **QVDesigner1\_Student.qvw** file and continue to use it in subsequent chapters. This file is located in the c:\QlikViewTraining\Designer\ directory. Course files and data will still be accessed in the chapter directories.
- 2 Save a copy of the file to preserve the original in case you want to start again from the beginning later. Do this by using the **File | Save As** command. There is also a QlikView file ending in “\_Solution.qvw” containing the completed exercise for your reference.
- 3 Go to the *Workspace* sheet.
- 4 Right click in a blank area of the sheet and choose **New Sheet Object: List Box**.
- 5 Select a field for your new list box (**General** tab).
- 6 Experiment with settings on the tabs in the **Properties** dialog as follows —
- 7 Change the **Title** (**General** tab)
- 8 Deselect **Single Column** and **Order by Column** (**Presentation** tab)
- 9 Sort on either **Numeric Value** or **Text** depending upon the type of data in the list box (**Sort** tab)
- 10 Either **Override Document Settings** and change the number format if you are working on a numeric list box (**Number** tab), or make changes to the display Font if you are working on a text list box (**Font** tab)
- 11 Move to the **Layout** tab and adjust the border settings. Make selections in the **Options** group and examine the effect.
- 12 On the **Caption** tab, create a **Multiline Caption**. Add **Special Icons** to your list box.
- 13 Click **OK** and save your work.



## 6 THE TABLE BOX

## Objectives

- Understand when to use table boxes
- Print from a table box
- Export data from a table box to a text file

This chapter introduces table boxes and gives you a chance to build a table box in your QlikView file.

By definition, the table box is a sheet object that shows several fields simultaneously.

## Introduction

Think of a table box as a combination of list boxes. Instead of placing each field in its own object separately, however, the table box combines them. The content of every row is logically connected. The columns may be fetched from different input tables, letting the user create tables from any possible combination of input tables.

So, when you want to present the contents of several list boxes in one table, you need a table box.

As the name implies, a table box is a table with rows and columns. Each column corresponds to a field (just like the column in a list box). The rows correspond to every possible combination of data in these columns.

Supplier	Category	Product
ABC	Baby Clothes	AAA Running Shoe
Asin Fashion Ltd Co	Children's Clothes	Aino Shoes
Austerlich	Men's Clothes	Atlas Lussekofta
Bar Åkeri	Men's Footwear	Baby Dark Lounge Suit
Big L	Sportswear	Basket Shoes
Cangaroo Shoes	Swimwear	Basket Vest
Der Bahnhof	Women's Clothes	Baywatch Swimsuit
Dressed for Succes	Women's Footwear	Bike Helmet
Executive Clothing GMBH		Bow tie

Figure 1. Three list boxes and a table box with the same contents

## Creating a Table Box

Creating a table box is a simple process:

- 1 Create a new table box by choosing **New Sheet Object – Table Box** from the **Layout**-menu, or you can right click in a blank area of the sheet and select **New Sheet Object – Table Box** from the menu.
- 2 Select the fields *SalesPerson*, *CompanyName*, and *ProductName*.
- 3 Click **OK** to generate the table box.
- 4 You can adjust the width of the table box by clicking the cursor on the vertical right edge of the table and dragging.
- 5 To adjust the column widths you can drag the column separators with the mouse. If you double-click with the cursor over the border between two columns, the width of the column to the left will be automatically adjusted to fit the data. If the cursor is in the caption area, the column width will be adjusted to the title instead.
- 6 The labels displayed in each column can be edited in the **Table Box Properties: General** page. Change the label for *CompanyName* to *Customer*.

After some adjustments, the table box may look like this:



SalesPerson	Customer	ProductName
Erik Presley	Boleros	Casual Boots
Erik Presley	Boleros	Lace Shoes
Erik Presley	Boleros	Mehmet-Tröja
Erik Presley	Boleros	Mr2 Trousers
Erik Presley	Boleros	Rasta WCT
Erik Presley	Cloe do Pau	Basket Vest
Erik Presley	Cloe do Pau	Baywatch Swimsuit
Erik Presley	Cloe do Pau	Bow tie
Erik Presley	Cloe do Pau	Duck Trousers
Erik Presley	Cloe do Pau	Game Over T-Shirt
Erik Presley	Cloe do Pau	Lundenhagen Boots
Erik Presley	Cloe do Pau	Rodbye Troje
Erik Presley	Cloe do Pau	Samba Soccer Socks
Erik Presley	Cloe do Pau	Terence Top
Erik Presley	Copacabana	Aino Shoes
Erik Presley	Copacabana	Basket Shoes
Erik Presley	Copacabana	Bike Helmet

Figure 2. The finished Table Box

There are of course numerous settings for the layout, sort order, etc. of table boxes. They are found under **Properties** in the object menu of the table box.

## Selections in Table Boxes

With QlikView's associative logic, the contents of the table box are automatically updated when you make selections in other objects.

Selected values are marked green in the table box while you select, just like the cells in a list box, but when you release the mouse button they revert to their original color. The size of the table is adjusted to display only the result of your selection.

Selections in a column can be indicated with a beacon to the right of the field name.



SalesPerson	Customer	ProductName
Frank Roll	Big Foot Shoes	Cap
Frank Roll	Big Foot Shoes	Casual Boots
Frank Roll	Big Foot Shoes	Duck Shirt
Frank Roll	Big Foot Shoes	Lace Shoes
Frank Roll	Big Foot Shoes	Okkaba Skin Jackets
Frank Roll	Big Foot Shoes	Rasta WCT
Frank Roll	Big Foot Shoes	Samba Soccer Socks
Frank Roll	Big Foot Shoes	Sapporoo Gloves
Frank Roll	Big Foot Shoes	Shagall Socks
Frank Roll	Big Foot Shoes	Summit Hiking Boots
Frank Roll	Big Foot Shoes	TieBreak Tennis shoes


Figure 3. Selections in a column, displaying indicator beacon

When you right-click a certain column in a table box, an object menu will appear, containing many of the options found in the list box object menu.

## Sorting in Table Boxes

There are two different meanings of sorting in table boxes. First of all, you can set the order in which the columns are displayed, from left to right. This is done by clicking the caption of a column and dragging it to a new position. A blue outline of the field indicates that you are performing a drag-and-drop operation. The order can also be set in the **Table Box Properties: General** dialog by means of the buttons **Promote** and **Demote**.

Secondly, the rows in the table box can be sorted according to the sort order for the values of specific fields in the table box. This is done in the dialog **Table Box Properties: Sort**. There you can also set a **Sort Priority** by moving fields up or down in the list. The sort priority is independent from the order in which the columns are displayed.

An alternative and convenient way is to simply right-click the column of the field you wish to sort on and select the **Sort** command from the table box menu. Double-clicking the column header works equally well. This will also bring the field name to the top position of the **Sort Priority** list. Repeated use of this command toggles the sort order for the selected field between ascending and descending order. A small arrow icon  at the top of the column indicates for which field the table is sorted and if the sort order is ascending or descending.

## More Table Box formatting options

In addition to the dialog pages **Table Box Properties: General** and **Sort**, the pages **Presentation**, **Style**, **Number**, **Font** and **Layout** offer numerous other possibilities for formatting table boxes.

The dialog pages **Number**, **Font** and **Layout** and **Caption** are almost the same as for list boxes and do not require further presentation. We will instead take a closer look at the pages **Presentation** and **Style**.

### Setting the alignment of columns

In the dialog **Table Box Properties: Presentation** you will find the options for text alignments in the columns. Alignment of text and numbers can be determined separately. Select one of the **Fields** and make the necessary adjustments under **Alignment**.

**Note:** Notice the check box **Omit Rows where field is NULL**. If this option is selected for a certain field, rows lacking values for this field (i.e. rows where the field is NULL) will not be shown in the table box. Similarly, this same formatting can be applied to charts and other QlikView objects to clean up the display of data.

### Applying a formatting style

For the various table types (table boxes, pivot tables and straight tables) a selection of pre-defined layouts are available from the dialog **Properties: Style**. The selection of styles is directly related to design best practices. Not all styles are appropriate in all situations.

## Printing data from a table box

Sometimes it is desirable to have a paper copy for a certain selection status, to use it in a report or some other external document. In QlikView you can print directly from the various table types. Printing a table box is done like this:

- 1 Right-click the table box and choose **Print** from the object menu.
- 2 Make appropriate adjustments to the printer options etc. from the **Print** dialog.
- 3 Click the **Print** button at the bottom of the dialog.



If you prefer to use the **Print** button in the toolbar, the process will skip the **Print** dialog and proceed directly with the printout. This button is active when a table box (or any printable object) is active and the computer has a printer installed.

- You can also print directly to a PDF file using the command **Print as PDF** in the object menu.
- Additional printing, exporting and reporting capabilities are covered in subsequent QlikView training courses.

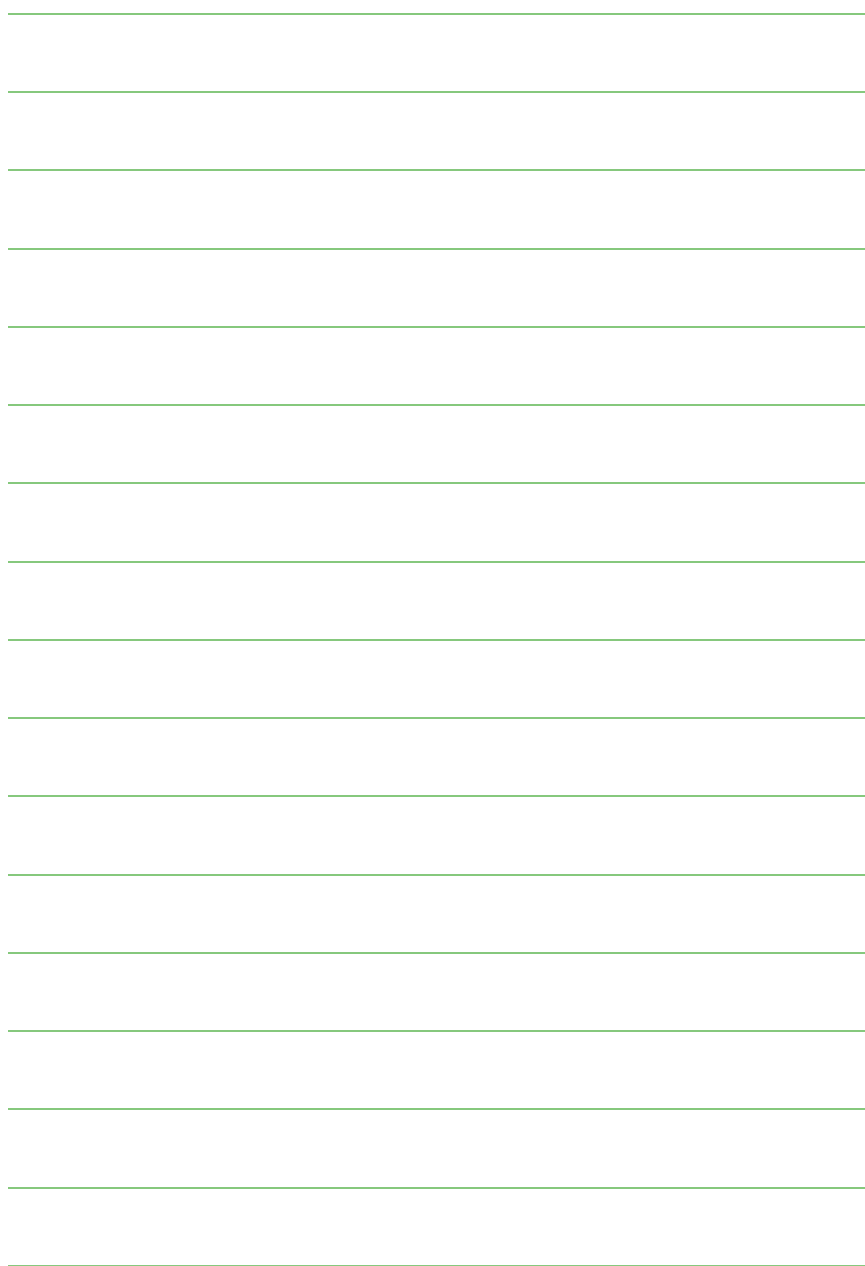
## Exporting data from a table box to a text file

You can also export the contents of a table box or other table to a file.

- 1 Right-click the table box and choose **Export** from the object menu.
- 2 Type a file name in the **File name** box in the dialog.
- 3 Choose a file type for the export. You can choose between comma-separated (.csv), tab-separated (.tab), semicolon-separated (.skv), HTML, XML and Excel. You can also use the standard QlikView format for export files (.qvo).
- 4 Click **Save** to execute the export.

Another possibility is to use the command **Send to Excel**. This will export the table to Excel, which is then automatically launched if not already running. The table will appear in a new Excel worksheet.

In numerous practical applications, QlikView is used for exporting data primarily to Excel, and the table box is often the preferred tool. Consequently, it is important to know how to work with table boxes. The exercises that follow will reinforce what you have learned so far.







## EXERCISES

### Do:

- 1 Navigate to the c:\QlikViewTraining\Designer\Chapter6 directory and open the **QVDesigner1\_Chapter6.qvw** file, or, if you are doing all the exercises in a linear progression, open the **QVDesigner1\_Student.qvw** file and continue to use it in subsequent chapters. This file is located in the c:\QlikViewTraining\Designer\ directory. Course files and data will still be accessed in the chapter directories.
- 2 Save a copy of the file to preserve the original in case you want to start again from the beginning later. Do this by using the **File | Save As** command. There is also a QlikView file ending in “\_Solution.qvw” containing the completed exercise for your reference.
- 3 Go to the *Workspace* sheet.
- 4 Create a table box containing the fields *OrderID*, *OrderDate*, *ProductID*, *ProductName*, *Quantity*.
- 5 Sort the table on *OrderDate* in descending order.
- 6 Let the column *OrderID* switch places with *OrderDate*. Move the column *Quantity* between *OrderID* and *ProductID*.
- 7 Apply the style *Pyjama 1*.
- 8 Go to the **Properties** of the table box and click on the **Presentation** tab.
- 9 Then CTRL-click on *OrderDate* and *ProductID* in the **Fields** window and mark the **Dropdown Select** checkbox and click on **Apply**, then **OK**.

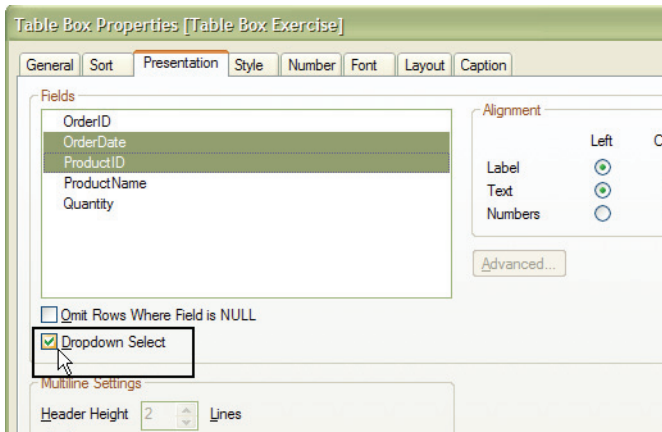


Figure 1. Setting the options for Dropdown Select to enable searching



- 10 Select the following directly in the table: the product with the ID 5 and all order dates of 2008 by clicking on the Dropdown menus and typing 2008 in the *OrderDate* dropdown and 5 in the *ProductID* dropdown.

Box Exercise				
OrderDate	ProductID	ProductName	Quantity	
86	2/9/2008	4 Rossi Shorts	5	
13	3/13/2008	4 Rossi Shorts	3	
67	3/1/2008	4 Rossi Shorts	14	
52	1/2/2008	4 Rossi Shorts	27	

Figure 2. Activating Search on table fields

- 11 Export the table to Excel using the command **Send to Excel**.
- 12 Minimize the table and create a new table box on the same sheet, containing the fields *CompanyName* (label *Customer*), *Address*, *PostalCode* and *City*.
- 13 If your *Workspace* tab does not contain a list box for *Country*, create one now.
- 14 Select all customers in France (in the list box *Country*).
- 15 Export the selected customers' addresses from the table box to the file **CustomersFrance.qvo**. Be sure to note where you save the exported file!
- 16 Start Excel and open the file **CustomersFrance.qvo** from Excel.

#### Optional extra exercises

- 1 Set the table box to display two lines per row.
- 2 Choose the *Basic* style.
- 3 Clear your selections.
- 4 Align the values of the column *PostalCode* left.

Table Box Exercise-Extra			
Customer	Address	PostalCode	City
Art et Fashion	2, rue du Commerce	69004	Lyon
Aujourd'hui	67, rue des Cinquante Otages	44000	Nantes
Champes	184, chaussée de Tournai	59000	Lille
Chateau de Ville	25, rue Lauriston	75016	Paris
Elle Fashion & Design	1 rue Alsace-Lorraine	31000	Toulouse
Jazz Style Fashion & Art	265, boulevard Charonne	75012	Paris
La Boheme	67, avenue de l'Europe	78000	Versailles
La Legion Mercenaire	12, rue des Bouchers	13008	Marseille

Figure 3. The completed (extra exercise) table box

## 7 THE MULTI BOX

### Objectives

- Understand the unique value of the multi box
- Create a multi box
- Manipulate the fields in the multi box

This chapter introduces the multi box.

The multi box offers the ultimate solution to the problem of displaying a large number of list boxes on the same sheet.

### Introduction

A multi box is like a set of dropdown list boxes gathered within the same frame. As the picture illustrates, every field is represented by a row in the multi box. Multiple fields can be combined into a single multi box. In addition, the function **Sort by Applicability (Multi Box Properties: General)** ensures that fields relevant to a search are sorted upwards in the multi box.

ProductID	SupplierID	ProductName	Supplier	UnitCost
1	1	AAA Running Shoe	ABC	0.89
2	2	Aino Shoes	Asin Fashion Ltd Co	1.65
3	3	Atles Lussekofta	Austerlich	2.65
4	4	Baby Dark Lounge Suit	Bar Åkeri	3.21
5	5	Basket Shoes	Big L	3.43
6	6	Basket Vest	Cangaroo Shoes	3.9
7	7	Bavwatch Swimsuit	Der Bahnhof	4.44

Multi Box	
ProductID	
ProductName	
SupplierID	
Supplier	
UnitCost	

Figure 1. Compare the space used by the list boxes to that of the multi box

There are a number of advantages of using a multi box instead of several list boxes:

- Less space is required in the layout. Thus, the layout may be less cluttered.
- It is possible to display a very large number of fields in a single multi box.
- The multi box excels at displaying the result of selections that result in a one-to-one relationship, since no data is shown until the selections define a single result in a multi box field.

**Note:** The last argument, however, implies that ordinary list boxes may well be the preferable solution for displaying fields primarily intended for making selections or otherwise generally illustrating one-to-many or many-to-many relationships.

## Selections in Multi Boxes

Selections can be made in any of the fields in a multi box.

- While a field in a multi box is closed, a value is shown only when it is the only possible (or selected) value in the field.
- You can open a field by clicking. The values of the field become available for selection, like in an ordinary list box.
- The list is automatically closed when you make a selection.
- Make multiple selections by click+drag or CTRL-click, just like in a list box.
- If you right-click in an individual field, you gain access to an object menu with essentially the same commands that can be found in the list box object menu.

## Creating a Multi Box

The following procedure can be used to create a multi box.

- 1 Create a new multi box by choosing **New Sheet Object – Multi Box** from the **Layout** menu. Or you can use the icon on the design toolbar.
- 2 Select the fields *Suppliers.CompanyName*, *Suppliers.Address*, *Suppliers.City*, *Suppliers.PostalCode*, *Suppliers.Country*, *Suppliers.Fax*, *Suppliers.Phone* and *Suppliers.ContactName*.

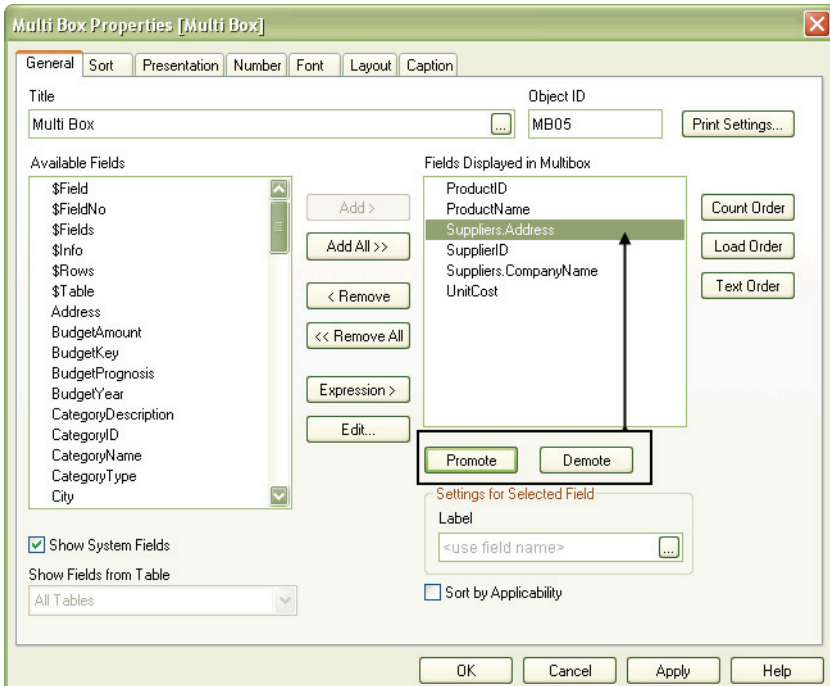


Figure 2. Using Promote and Demote to re-order fields


- 3 Bring the fields into an appropriate order by using the **Promote** and **Demote** buttons under the list of **Fields Displayed in Multi Box**.
- 4 Click **OK** to finish your multi box.

**Tip:** If you are still not satisfied with the order of the fields you can change it by simply dragging fields to a new place within the finished multi box.

## Resizing Multi Boxes

You can alter the size of a multi box by clicking and dragging, much like you would a list box, but the method is slightly different:

- If you click + drag the lower right corner you may expand the multi box to remove any scrollbars.

- Immediately inside the frame, to the far right of the multi box, is another position that can be manipulated with the mouse. If you **click + drag** here you can alter the width of the column where the field data is displayed.
- If you do the same in a position just left of the arrow buttons , you can alter the width of the labels column instead.

## Formatting Multi Boxes

As usual, you may alter the properties of the multi box if you right-click on it and choose **Properties** from the object menu. The **Multi Box Properties** dialog consists of the pages **General**, **Sort**, **Presentation**, **Number**, **Font**, **Layout** and **Caption** and offers roughly the same settings that we know from list boxes and table boxes.



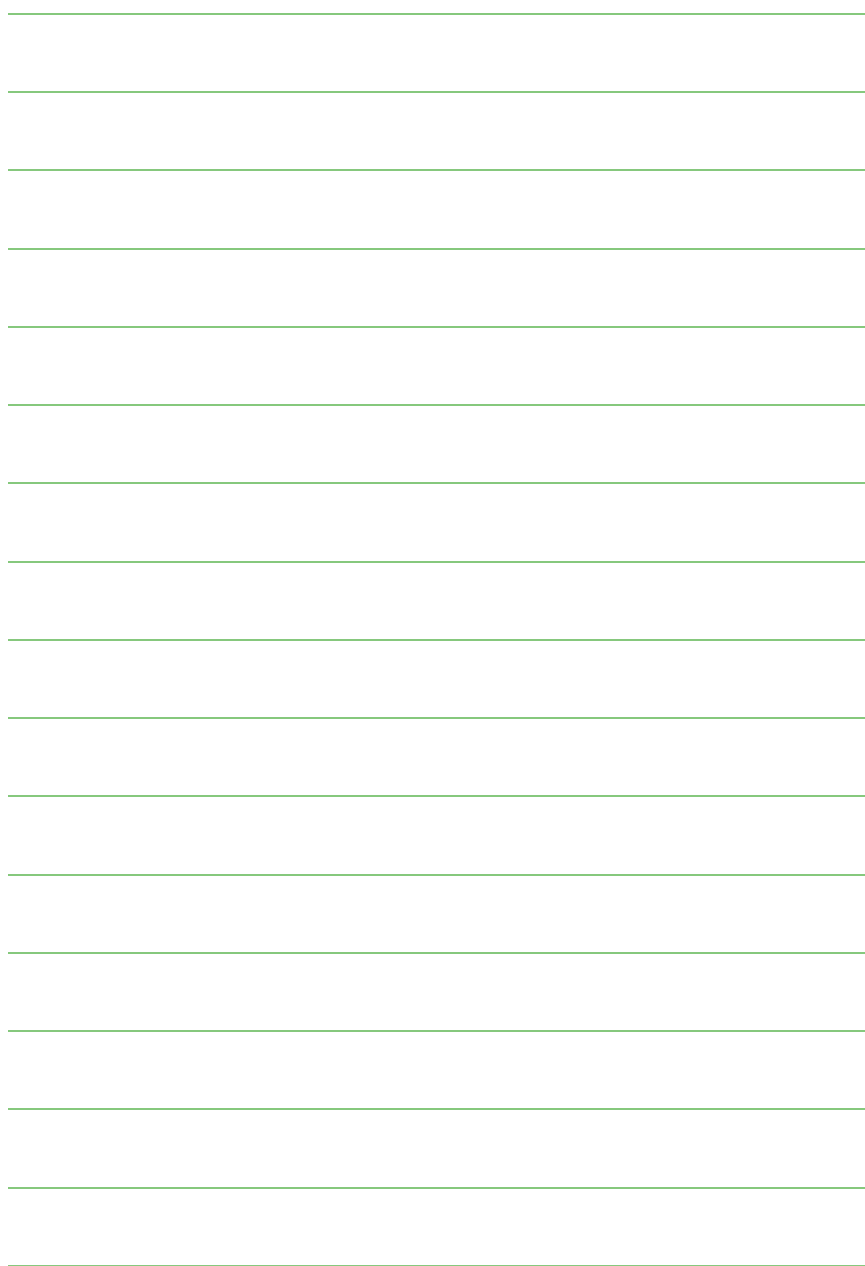
## EXERCISES

### Do:

- 1 Navigate to the c:\QlikViewTraining\Designer\Chapter7 directory and open the **QVDesigner1\_Chapter7.qvw** file, or, if you are doing all the exercises in a linear progression, open the **QVDesigner1\_Student.qvw** file and continue to use it in subsequent chapters. This file is located in the c:\QlikViewTraining\Designer\ directory. Course files and data will still be accessed in the chapter directories.
- 2 Save a copy of the file to preserve the original in case you want to start again from the beginning later. Do this by using the **File | Save As** command. There is also a QlikView file ending in “\_Solution.qvw” containing the completed exercise for your reference.
- 3 Begin on the *Workspace* sheet and create a multi box with the fields *OrderID*, *OrderDate*, *SalesPerson* and *CompanyName* (Label: *Customer*), *Country* and *Shipper*.

### Optional extra exercises

- 1 Enlarge the right column of the multi box to have all values fully visible.
- 2 In the **Multi Box Properties: Presentation** page, select a color or color gradient of your choice for the closed multi box. If you would like to use the same pale color as in the existing multi box, you can alternatively use the **Format Painter** tool to transfer the properties from one object to the other. But be aware that you cannot use **Undo** to reverse the format you apply with the **Format Painter**.
- 3 Experiment with the **Multi Box Properties: Presentation** by choosing the **Grid Style** check box and setting the **Limit Drop-Down To** 6 lines.





## 8 OTHER IMPORTANT BOXES

### Objectives

- Explore Search Objects
- Introduce the statistics box and current selections box
- Understand the flexibility of the text object

This chapter introduces three important QlikView objects: the search object statistics box, the current selections box and the text object.

### Search Objects

Search objects can be used for searching for information anywhere in the document. They are created by choosing new sheet object from the layout menu or from the sheet object menu.

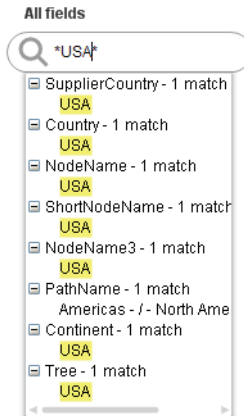


Figure 1. The Search Object in action

#### How it Works

The search object properties dialog is opened by choosing **Properties** from the **Object** menu. If the properties command is dimmed you probably don't have the privileges needed to perform property changes.

To configure the search options, make selections on the **General** tab. Here you can decide to search all fields, or a specific list of fields.

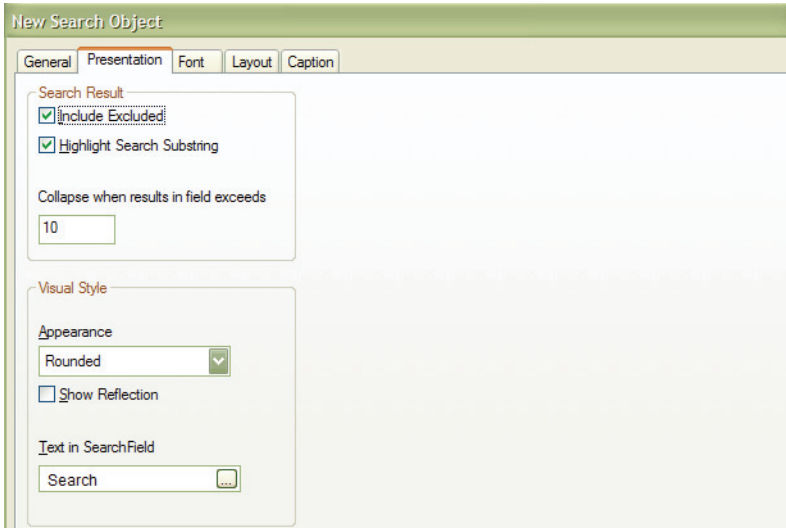


Figure 2. The Presentation tab of the Search Object

The **Presentation** tab gives you the chance to define the look and feel of your search object. You can affect the search result display and the visual style. In the font tab you can specify the font style and size of the text in the search object. The layout tab gives you the chance to specify how the search object should appear on the layout. As with other QlikView objects, this includes settings for shape border and the layer on which the object should reside. Finally, on the **Caption** tab, advanced settings can be made for the caption of the search object.

## The Statistics Box

A statistics box does not display field values, but, rather, it presents statistics based on a particular field value. The statistics box can be configured to display any number of up to fifteen statistical functions. The default settings are: *Total count*, *Sum*, *Average*, *Min value* and *Max value*. A statistics box for Sales (*LineSalesAmount*) can be found on both the *Sample* and the *Basic Objects* sheets and is reproduced, below. The contents of the statistics box change based on the selection status in the QlikView file (what the user clicks).

Total count	17,032.00
Sum	13,321,238.07
Average	782.13
Min	1.99
Max	45,101.16

Figure 3. A statistics box based on Sales (the LineSalesAmount field)

## The Current Selections Box

The current selections box, as its name implies, displays the selection status of your document. It is a good idea to place a current selections box on every sheet in your application. The current selections box lists all fields where selections have been made as well as the selected values or – if there are too many of them to display in the space allocated – the number of selected values. A current selections box can be found on both the *Sample* and the *Basic Objects* sheets and is reproduced, below.

Fields	Values
Country	Finland
Year	2008
SalesPerson	Helen Brolin

Figure 4. A current selections box is dynamic, representing the selection status from moment to moment.

## Text Objects

Text objects are used for adding information to a QlikView document. They can be used to show text information or an image in the layout. They can be moved and positioned anywhere on a sheet, just like any other sheet object.

Text objects can also be used effectively for displaying the results of calculations, and to create backgrounds, borders and titles for groups of objects on a QlikView page.

### Introduction

Think of a text object as a blank canvas for content. You can use it to create an introduction page for your QlikView application, or simply to display the data model that supports your analysis. Text objects can also be used for pictures and can also contain calculations. Some examples of the uses of text objects:

- Images
- Expressions and Calculations
- Backgrounds
- Introduction Sheet Example

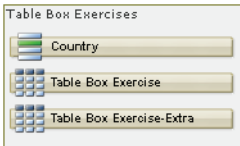
The chapter exercises will give you the chance to experiment with building text objects of your own.

### Creating Text Objects

Like any other object in QlikView, the most common way to create a text object, aside from copying one that already exists, is to right click in a blank area of the layout to display the **Sheet Object** Menu and selecting **New Sheet Object: Text Object**. You can also click on the icon in the design toolbar.

### Backgrounds

A background text object can be as simple as a shaded color box on top of which you place minimized icons.



*Figure 5. Background text object called “Table Box Exercises” with three minimized objects displayed on top*

**Note:** Text objects are great for backgrounds to call out a particular section of your sheet, but you should avoid using them too often both because they can add to the visual complexity of the sheet, and because they can hamper the ability of your users and developers to access object menus using the familiar right-click method. That said, transparent backgrounds can be used to provide borders and titles to groups of items that the eye should be drawn to together.



## EXERCISE: CREATE A SEARCH OBJECT

### Do:

- 1 Navigate to the c:\QlikViewTraining\Designer\Chapter8 directory and open the **QVDesigner1\_Chapter8.qvw** file, or, if you are doing all the exercises in a linear progression, open the **QVDesigner1\_Student.qvw** file and continue to use it in subsequent chapters. This file is located in the c:\QlikViewTraining\Designer\ directory. Course files and data will still be accessed in the chapter directories.
- 2 Save a copy of the file to preserve the original in case you want to start again from the beginning later. Do this by using the **File | Save As** command. There is also a QlikView file ending in “\_Solution.qvw” containing the completed exercise for your reference.  
Search objects can be used to search through one or several fields in the application. By using the search object, you can actually make selections in fields that are not present on the sheet where you have the search object.
- 3 Start on the *Workspace* tab
- 4 Start by adding the two list boxes *Country* and *SupplierCountry*
- 5 Right click on the sheet and open **New Sheet Object** and select **Search Object**.
- 6 Select the radio button **Selected fields**
- 7 Select the fields *Country* and *Suppliers.Country*.
- 8 Go to the Presentation page and select the check boxes for **Include Excluded** and **Highlight Substring**.
  - **Include Excluded** - Will include values in the search that has been excluded by previous selections.
  - **Highlight substring** - Will highlight in yellow what you have typed so far in values still possible.
- 9 Click **OK** to close the Properties dialog.
- 10 Click on the Search object to open it for searching.
- 11 Start typing S.  
As you can see there will be a box with the search in both fields.  
If there are more values than the box is allowed to show, only the number of matches will be seen in the result window.
- 12 Continue typing w in order to search for *Sweden*.  
As you can see, the number of matches can now be seen in the Search result box and the typed values are highlighted in yellow.
- 13 Type the letter e and press Enter when only *Sweden* is available in both list boxes.  
*Sweden* is now selected in both list boxes.



14 Add another list box, *ProductName* to the sheet.

The products now available are products that has been sold to customers in *Sweden*, supplied by *Swedish suppliers*.

**Tip:** If you want to find different countries in the two list boxes, search for one country first, and click on the value in the list box where you want to make the selection. Then search for the other country and click on that value in the other list box.

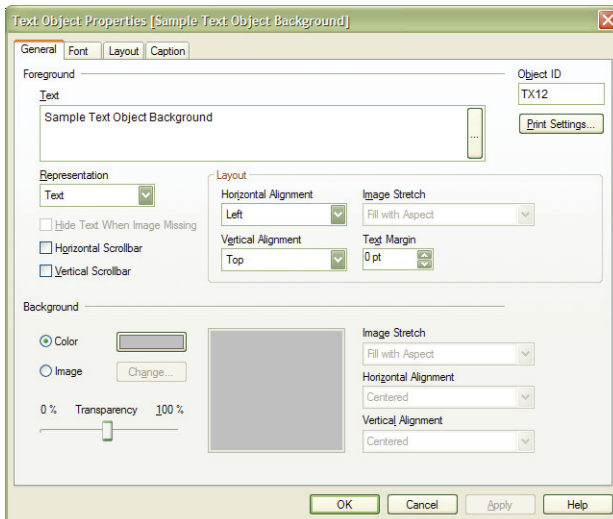
#### Extra Credit

- 1 Find out what products have been sold to *Spain* by *Canadian suppliers*.
- 2 Now create a Search box that searches through all fields of the application.

## EXERCISE – CREATE A BACKGROUND TEXT OBJECT

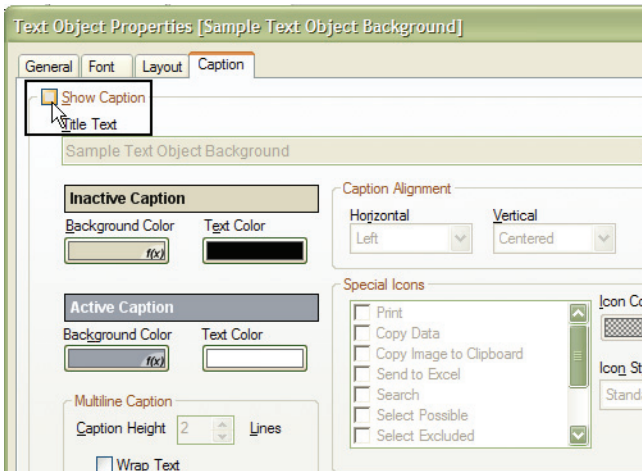
### Do:

- 1 Navigate to the c:\QlikViewTraining\Designer\Chapter8 directory and open the **QVDesigner1\_Chapter8.qvw** file , or, if you are doing all the exercises in a linear progression, open the **QVDesigner1\_Student.qvw** file and continue to use it in subsequent chapters. This file is located in the c:\QlikViewTraining\Designer\ directory. Course files and data will still be accessed in the chapter directories.
- 2 Save a copy of the file to preserve the original in case you want to start again from the beginning later. Do this by using the **File | Save As** command. There is also a QlikView file ending in “\_Solution.qvw” containing the completed exercise for your reference.
- 3 On the *Workspace* sheet, right-click in a blank area of the layout to display the **Sheet Object** Menu and select **New Sheet Object: Text Object**. You can also click on the icon in the design toolbar.



- 4 In the **General** tab of the new text object, type something into the **Text** window. You could choose *Sample Text Object Background*, for example.
- 5 Be sure the **Representation** dropdown is set to **Text** and that the two Scrollbar checkboxes are de-selected.

- 6 In the **Layout** area at the center of the dialog, select *Centered* for **Horizontal Alignment** and *Top* for **Vertical Alignment**.
- 7 Click on the **Color** box to change the background color.
- 8 Experiment with the **Transparency** slider.
- 9 Click on the **Font** tab and make any changes you would like
- 10 On the **Layout** tab, confirm that the *Bottom* radio button is checked for the **Layer**.
- 11 On the **Caption** tab, be sure the **Show Caption** check box is de-selected.



- 12 Click **OK**. Manipulate the text object on the sheet. Experiment with adding borders. Save your work.

## Images

Images (pictures, graphics, etc.) can be placed in text objects as follows:

- dynamically, by using an expression in the **Text Window** on the **General** tab
- automatically, by imbedding the image using the **Info Load** statement in the script
- manually, by connecting the image to the text object using the **Image** button on the **General** tab.

In the exercise that follows, we will place an image in a text object using the manual method.

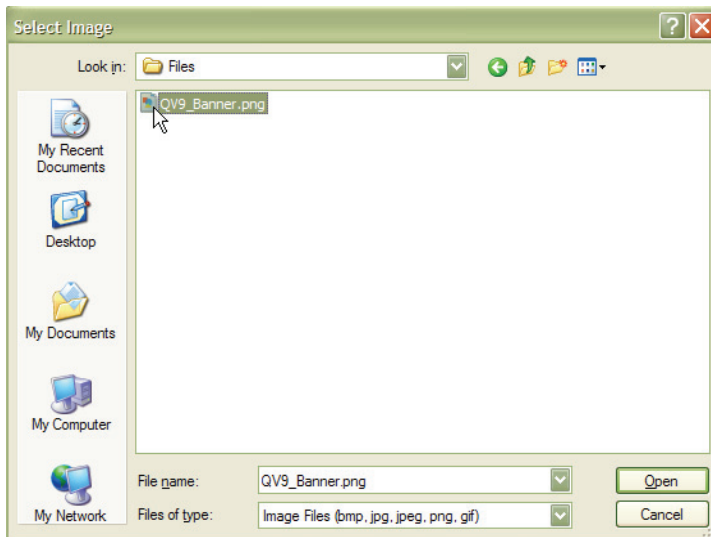
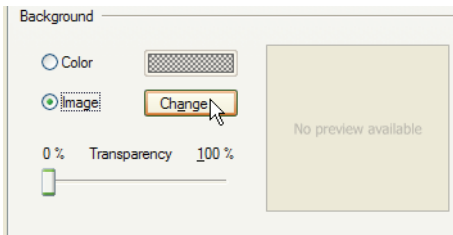




## EXERCISE – CREATE A TEXT OBJECT BASED ON AN IMAGE

### Do:

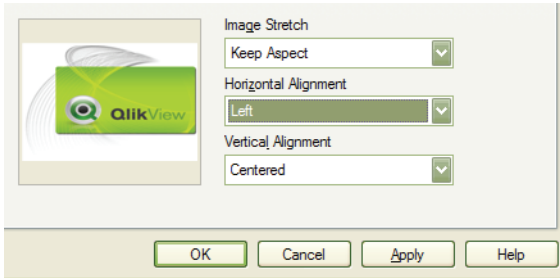
- 1 Assuming your working file, **QVDesigner1\_Chapter8.qvw** (or the **QVDesigner1\_Student.qvw** file, if you are doing all the exercises there) is still open, go to the *Workspace* sheet.
- 2 Create a new text object.
- 3 In the **General** tab, click on the **Image** radio button in the *Background* section. Click on the **Change** button, and navigate to the **Files** folder in your course materials directory.



- 4 Select the **QV9\_Banner.png** file and click **Open**.




- 5 Experiment with the **Image Stretch** and **Alignment** drop down menus by changing the selections, clicking **OK** and experimenting with the text object on your sheet.



- 6 Place the text object on your *Workspace* sheet and **Save** your work.

#### Expressions and Calculations

Text objects can be powerful displays of data and calculations. Anywhere you see the **Ellipsis** button  in QlikView is a place into which an expression can be entered. A text object can represent this expression anywhere in your QlikView file.

In the following exercise, we will use a QlikView expression and function to create a dynamic Text object that will display the most current data re-load for our QlikView file.



## EXERCISE – EXPRESSIONS AND CALCULATIONS

### Do:

- 1 Go to the *Workspace* sheet.
- 2 Create a new text object.
- 3 In the **Text** window, type the following:  

```
='[ Updated at ' & timestamp(reloadtime()), 'hh:mm on  
MMM DD, YYYY') & ' ]'
```
- 4 Make the background color match the sheet. (Unless you have changed something, this will be white), or you can set the transparency to 100% and the background color will not matter. Click **OK**. The reload time should display.

Text Object Properties [= '[ Updated at ' & timestamp(reloadtime()), 'hh:mm on MMM DD, YYYY') & ' ]' ...

General Actions Font Layout Caption

Foreground

Text

= '[ Updated at ' & timestamp(reloadtime()), 'hh:mm on MMM DD, YYYY') & ' ]'

Object ID  
TX06

Print Settings...

Representation

Text

☐ Hide Text When Image Missing

☐ Horizontal Scrollbar

☐ Vertical Scrollbar

Layout

Horizontal Alignment  
Left

Vertical Alignment  
Centered

Image Stretch  
No Stretch

Text Margin  
2 pt

Background

☒ Color

☐ Image

0 % Transparency 100 %

Image Stretch  
Fill with Aspect

Horizontal Alignment  
Centered

Vertical Alignment  
Centered

- 5 Place the new object on the page.
- 6 Save your work.



### Introduction Sheet Example

An Introduction Sheet Text Object can serve as an informational first-stop for users. You can create an Introduction Sheet using a combination of individual text objects formatted for the type of display or layout you are trying to obtain, or you can build your Introduction Sheet Text Object in some other application and simply insert it as an image in your QlikView document. That is what we will do in the exercise below, depending on a previously created Introduction Sheet Object for our example.



## EXERCISE – INTRODUCTION SHEET TEXT OBJECT

### Do:

- 1 Navigate to the *How To* sheet. If you are using the **QVDesigner1\_Student.qvw** file, you will need to create the sheet.
- 2 Create a new text object.
- 3 There is no text to type into the **Text** window. Set the background to **Image** by clicking the **Image** radio button. Click **Change** and navigate to the **Files** folder. Click on the **HowToSheet.png** and click **Open**.
- 4 Select **Keep Aspect** from the **Image Stretch** dropdown and click **OK**.
- 5 Size the new text object on the sheet.

### Other Examples

The following picture is a representation of the data model underlying the course materials. It was created using tools available to you in QlikView, and can be a powerful addition to your QlikView files, particularly in cases where developers or end-users need to understand the relationships between the source data.

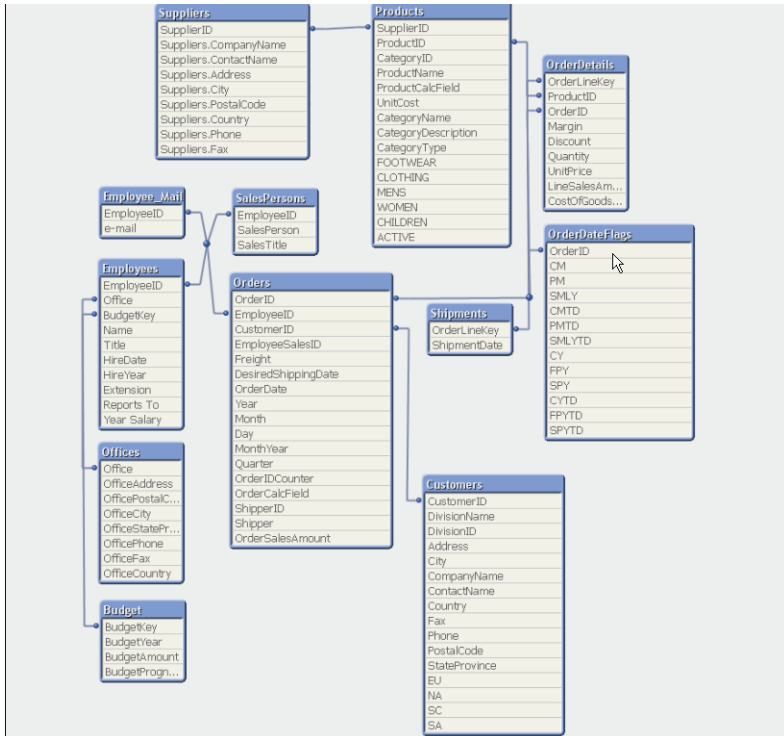


Figure 1. Layout designer course data structure

When you first activate the **Table Viewer** (available from the file menu), the layout of the tables might be a little cluttered. You can click and drag the tables to arrange them. Just be sure to click **OK** when you have finished improving the layout.

**Tip:** Arrange your layout view in the **Table Viewer** and click **OK** when you are done to preserve it for the next time you use the **Table Viewer** in QlikView.



## EXTRA CREDIT EXERCISE – SYSTEM SHEET AND DATA MODEL

### Do:

- 1 Create an image of the data structure in your QVDesigner1\_Chapter8.qvw file (or the QVDesigner1\_Student.qvw file) using tools available to you from within QlikView (*Hint: locate and use the **Table Viewer***).

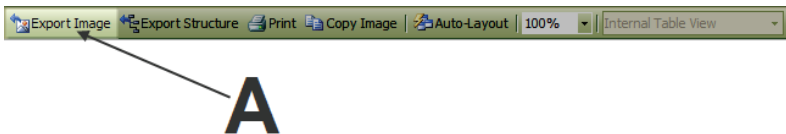
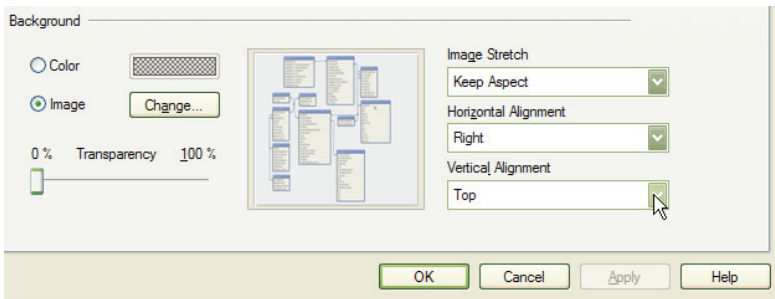


Figure 2. A: Click on the *Export Image* button to make a copy of your data structure and save it into the Files folder

- 2 Add a sheet to your layout. Name it *System* and insert a text object containing the image of the data model created above. Be sure to format your text object appropriately, paying particular attention to the *Background* section of the **General** tab of the **Text Object Properties**.



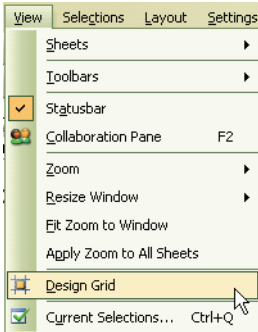
- 3 Save your work.

### Formatting, Resizing, Copying and Moving Text Objects

Text objects have similar format, size, copy and movement menus to other QlikView objects. The three tabs available to you when formatting text objects are: **General**, **Font** and **Layout**. Text objects can be resized, copied and moved like other objects.



Sometimes you will place text objects on the page without borders, making it difficult to determine where to pick up and grab it for re-sizing. Rather than clicking through all the buttons to turn borders on and off again, simply turn on the Design Grid to see the borders of the text object for re-sizing.



Notice how simple it is to see where to click for re-sizing in the image below:



*Figure 3. Using the Design Grid to ease re-sizing objects without borders and captions*



## 9 CHARTS

### Objectives

- Learn about charts, how to create them, and their properties
- Edit the format and layout of existing charts
- Use common mathematical expressions and aggregations in charts

Charts are a collection of graphical objects that can display one or several expressions plotted over one or several dimensions, such as "Total sales per Month." In QlikView, you will recognize the most common chart types: bar, line and pie charts, but several other types, including two kinds of tables, are also included as charts.

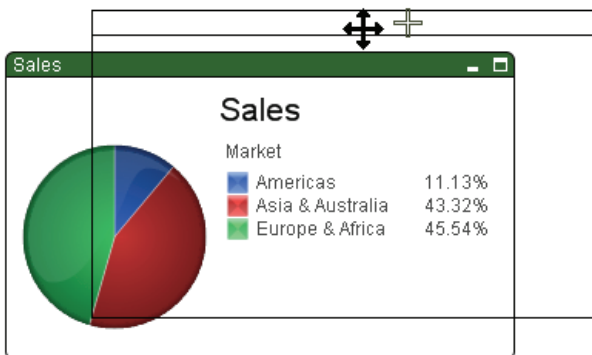
### Chart Basics

Before we begin with the creation of charts, we are going to quickly explore some basic functionality with charts within QlikView.

Charts can be moved, sized and copied in the same way as other sheet objects.

You can duplicate charts using the following method within QlikView:

- 1 Press the CTRL key and keep it depressed while placing the mouse cursor on the header of the chart.
- 2 Press the mouse button and drag the chart to one side. While dragging, make sure that a small plus sign appears; if it does not, this means that you have released the CTRL key.

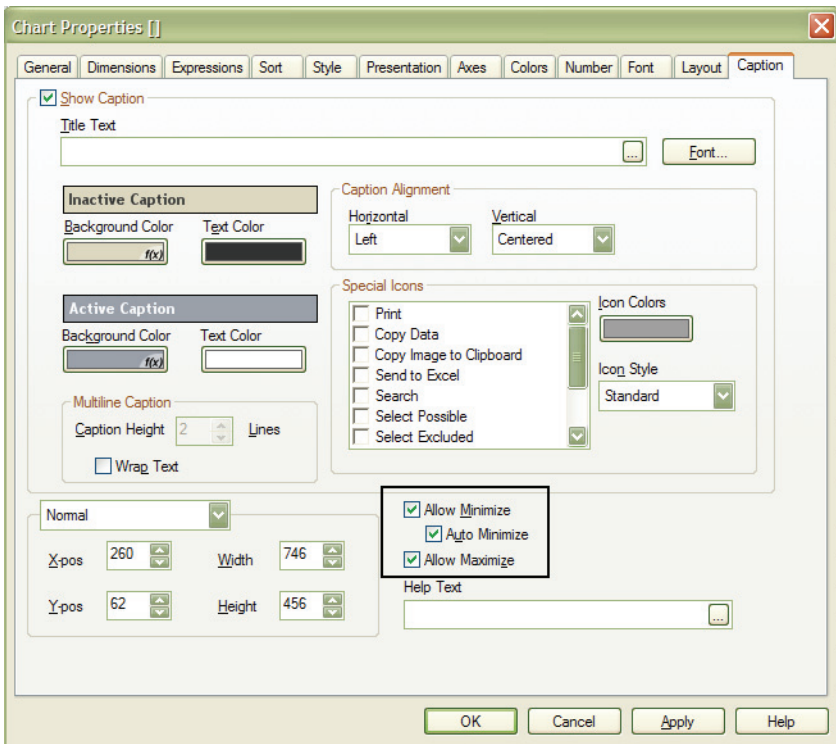


## Auto Minimize and Auto Restore

By default, charts are automatically minimized, or restored when you double-click on its header. A minimized chart will appear as a small icon with a thumbnail of the type of chart it is. Below is an example of these icons:

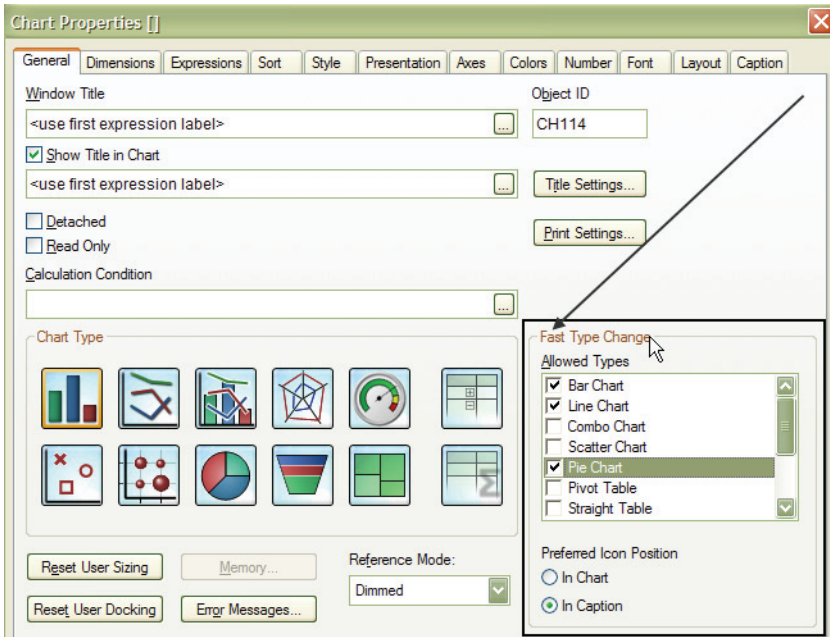


Should you ever need to disable the auto minimize functionality of a chart, you can do so by un-checking the **Allow Minimize** and **Auto Minimize** options in the **Caption** tab of the **Chart Properties** dialog.



## Changing Chart Type with Fast Type Change Icon

Some charts in QlikView are suited for displaying as more than one type. You can select which types by clicking on them in the **Fast Type Change** window on the **General** tab of the **Chart Properties** dialog.



When looking at the completed chart, this is shown as a little icon in the chart's header. The icon appears as a miniature of the next chart type that will appear if you click on it.

This example shows us the next chart type will be a Bar Chart if we click on the icon



## Creating a Chart

The general way to create a chart is to define what the chart should show and what it should look like in the **Chart Properties** dialog. However, if you want to create a simple chart and you do not need many detailed settings, you may prefer to use the **QuickChart Wizard**. In both cases you will get a full-blown chart, only the creation process is simplified when using the **QuickChart Wizard**.

## Creating a Chart Using the Quick Chart Wizard

Let's start with a chart showing the sales per country.

- 1 Go to the sheet *Basic Objects* and choose **QuickChart Wizard** from the **Tools** menu or click the **QuickChart** button in the tool-bar.



The first page of the **QuickChart Wizard** explains the purpose of the wizard and the basic steps to create a chart using the wizard.

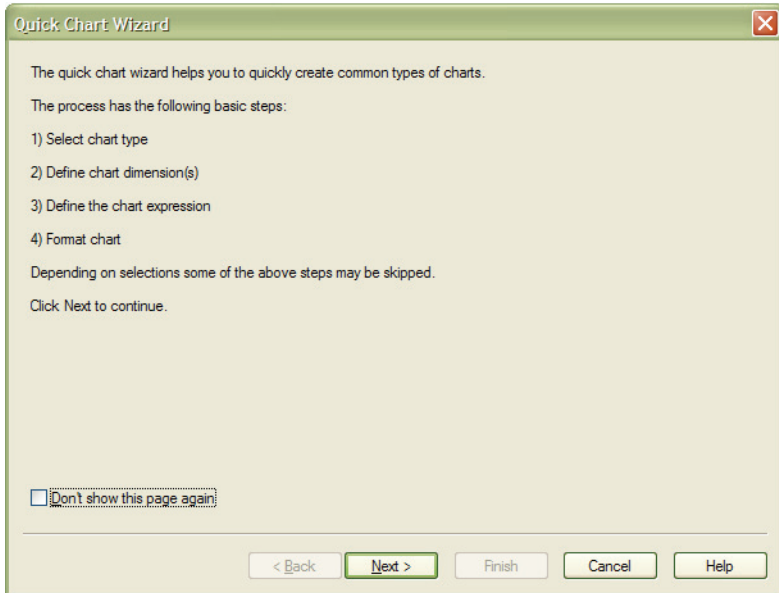
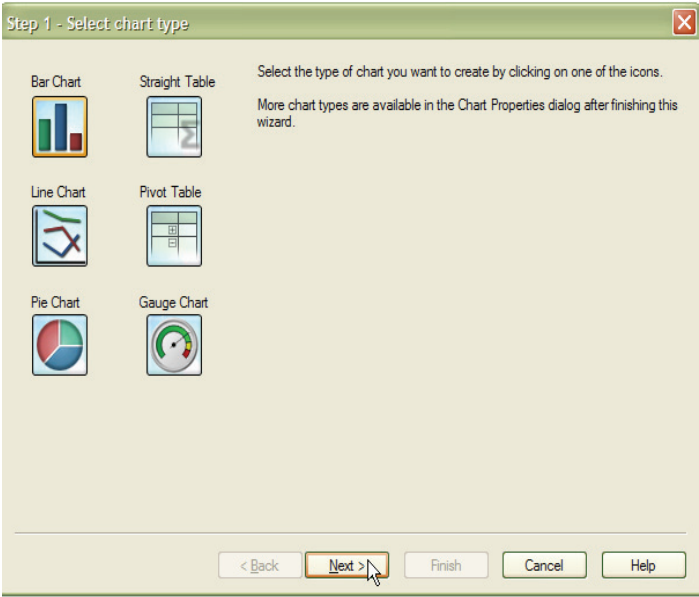


Figure 1. The first page of the QuickChart Wizard

- 2 Click **Next**.
- 3 In Step 1 you choose the chart type. The bar chart is selected by default, so you just click **Next**.



- 4 Step 2 is the definition of the chart's dimension, shown on the x-axis. Choose *Country* from the dropdown list **First Dimension**. Then click **Next**.

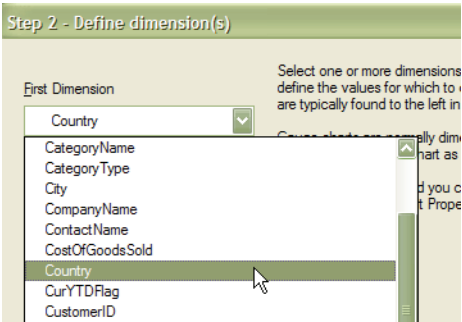


Figure 2. Defining the chart's dimension

- 5 In step 3 you define the chart's expression used to calculate the bar height. **Sum** is already pre-selected. Choose the field *LineSalesAmount* from the dropdown list.

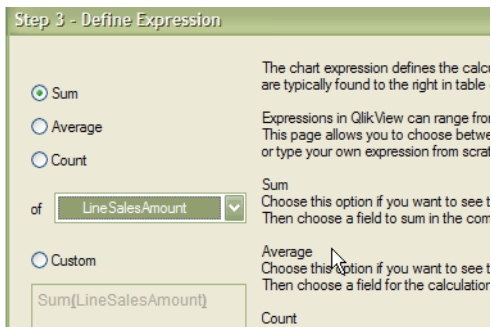


Figure 3. Defining the chart's expression

- 6 Step 4 offers you just a couple of often used formatting options. Leave the settings unchanged and click **Finish**.

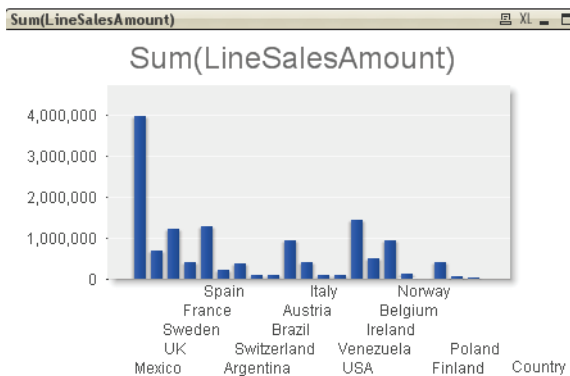


Figure 4. The finished chart showing Sales per Country

With the chart on the sheet, it is obvious there is room for improvement regarding the chart title, formatting or sorting. Next, adjustments can be made in the **Chart Properties** dialog.

### Creating a Chart Using the Full Properties Dialog

Now, let's take the long way and create a new chart showing the number of orders per customer using the **Chart Properties** dialog.

- 1 Go to the sheet *Basic Objects* and create a new chart by choosing **New Sheet Object - Chart** from the **Layout** menu.

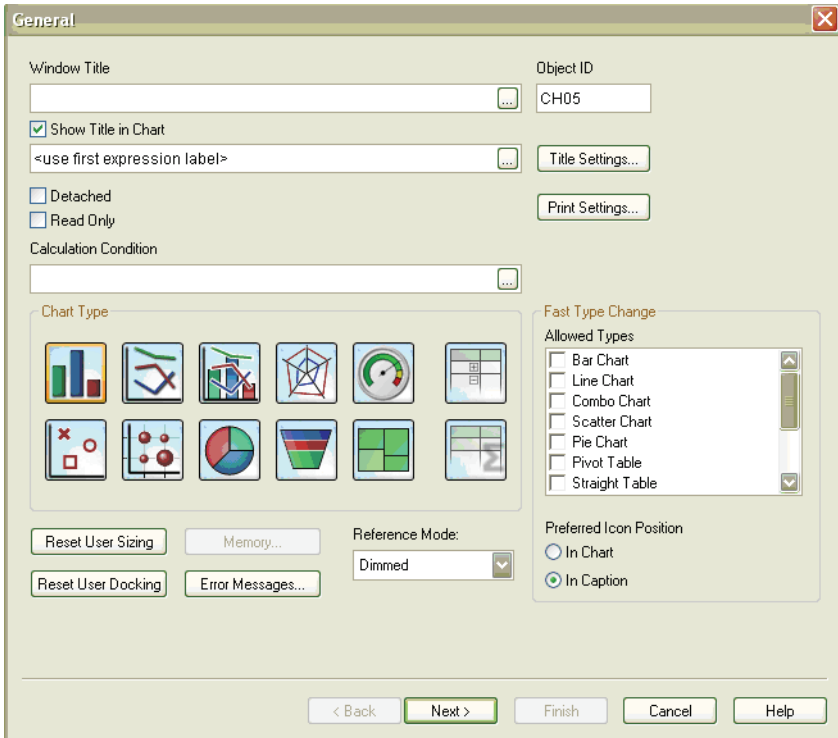


Figure 5. The first page of the Chart Properties dialog

- 2 Under **Chart Type**, the bar chart is already pre-selected. Click **Next**. This will take you to the **Dimensions** page.
- 3 Specify what the x-axis is representing by selecting a dimension from **Available Fields/Groups**. In this example, we select *CompanyName* and click **Add >**.

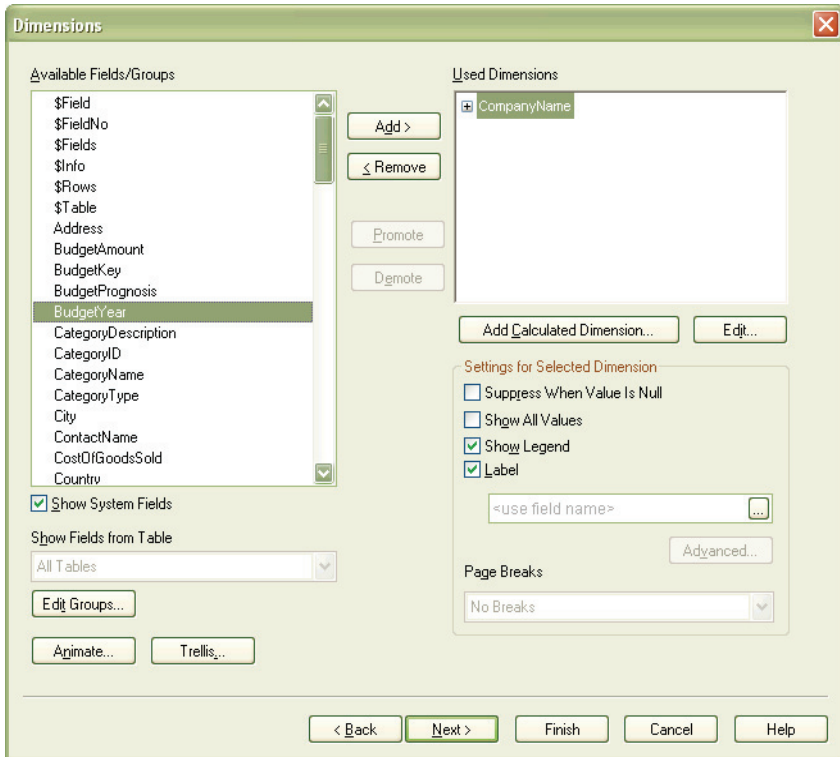


Figure 6. The dialog page *Dimensions*

- 4 Under the **Label** option enter *Customer* as name for the dimension.
- 5 To specify what you want the y-axis to represent, click **Next**. This takes you to the **Edit Expression** dialog.



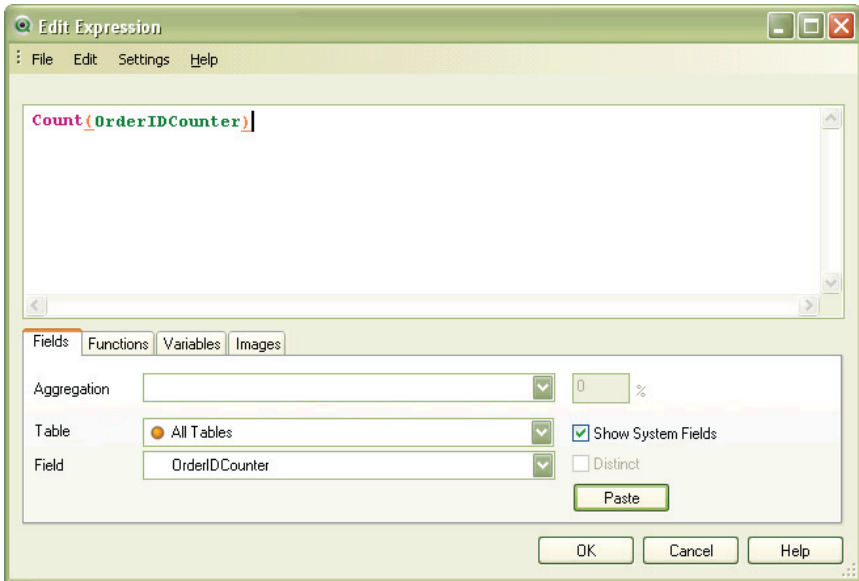


Figure 7. The Edit Expression dialog

- 6 If you are familiar with the expression syntax, you can type your expression directly into the expression editor. Otherwise, the options in the bottom of the dialog will help you to create the expression. In our case, we will build the function *count(OrderIDCounter)* by selecting **Total count** in the dropdown list **Aggregation** and *OrderIDCounter* under **Field**.

**Note:** Had the QlikView developer not created the *OrderIDCounter* field in the data model, you might have had an issue with getting accurate numbers here. It might have been necessary to check the **Distinct** option to make duplicate order IDs count only once.

- 7 Click the **Paste** button, followed by **OK**, to close the **Edit Expression** dialog. This will bring you back to the **Chart Properties: Expressions** dialog. There, enter *Orders* as the **Label** for the expression and check **Numbers on Data Point** under **Display Options**.

- 8 There are several additional pages allowing various customizations to the chart, but we have entered enough information to create a basic chart by clicking **Finish** to get a fully operational, if somewhat confusing chart, shown below:

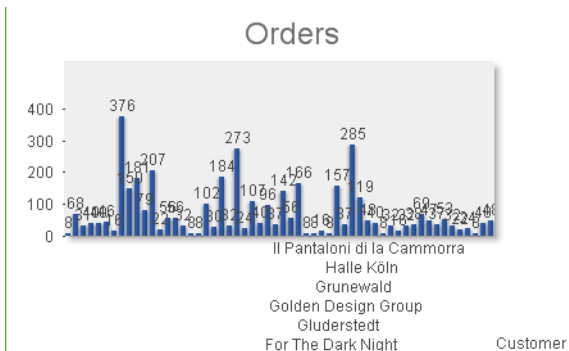


Figure 8. The basic Orders per Customer Chart

## Selections in Charts

We should take a moment to talk about selecting data directly within a chart. Since it is a live object, there are several methods to make selections directly in charts:

- Hold down the left mouse button and drag over some of the bars in the chart. You have now selected the customers corresponding to the selected bars.
- To narrow down the selection, you can drag over one or a few of the remaining bars.
- Non-adjacent values can be selected by means of the CTRL-click method.
- Choose **Clear All Selections** from the chart's object menu to selectively remove those selections made in the chart, or click the **Clear** button to remove all selections.
- You can also make multiple selections by dragging over values along the x-axis, provided that they are visible.

## Changing the Chart Properties for Existing Charts

So, you have created a basic chart but want to improve its appearance? This section provides additional examples of what can be accomplished with the powerful charting capabilities in QlikView. We will move through a couple of examples to improve the look and function of the charts created in the previous sections of this chapter.

Changes to existing charts are made in the **Chart Properties** dialog which is opened by right-clicking the chart and choosing **Properties** from the menu. Our first goal will be to simplify the look of the *Orders* chart created in the section, above.

### Sorting and Limiting the Dimension Values

To sort and limit the display of the dimension values (the customers displayed on the chart and the number of orders they placed) we will perform the following steps:

- 1 Right-click the *Orders* chart and open its **Chart Properties** dialog. Go to the **Sort** page.
- 2 In the **Sort by** group check **Y-value** and **Descending** to sort the bars according to their size.
- 3 Click **OK** to close the dialog and check the result.

We should also limit the number of customers (i.e. dimension values) displayed at one time on the chart:

- 4 Right-click the chart again and go to the dialog page **Presentation**. Limit the number of bars by checking **Max Visible Number** and entering **10** in the edit box.



Figure 9. The *Orders* chart after the first adjustments

- 5 Repeat the same steps for the Sales Per Country chart.

### Displaying and Formatting Numbers in Charts

In the sales chart, it would be nice to have numbers displayed on the bars like in the orders chart.

- 1 Open the **Chart Properties: Expressions** page of the Sales chart and check the option **Numbers on Data Point**. Click **OK** to see the result.

Now there are numbers displayed but obviously, the number format should be adjusted for a better overview.

- 2 Right-click the chart again and go to the **Chart Properties: Number** page.
- 3 Check **Fixed to**. This format makes it possible to limit the number of decimals shown. Set the **Decimals** value to *1*.
- 4 Type \$ as the unit for the y-axis under **Symbol**.
- 5 Type *1000 \$* under **1000 Symbol** and click **OK**.

### Adjusting the Dimension Labels

The x-axis labels in both charts are a bit squeezed. Apart from a further limitation of the number of bars, there are more things that can be done to solve that problem. We will run through some of them now on the *Sales* chart. You are welcome to try them out on one or both charts. You will also get experience with this in the exercise at the end of this chapter. The settings may also be combined.

- You can set a smaller font for the x-axis labels. To do this, go to the **Chart Properties: Axes** page. Under **Dimension Axis** click **Font** and select a smaller font in the **Font** dialog.
- You can display the labels vertically or diagonally. This is done in the **Chart Properties: Axes** page under **Dimension Axis** by choosing the corresponding symbol for the **Primary Dimension Labels**.
- You can limit the number of characters for the dimension labels. This makes sense when the differing lengths of the labels cause problems in the display. To do this, activate the option **Limit Legend (Characters)** in the **Properties: Presentation** dialog and enter a maximum number of characters in the edit box.

You can hover the mouse pointer over the bars of the chart to get a display popup info showing the x-axis and y-axis values (unless the popup labels have been deactivated).

### Setting the Chart Title

While the orders chart already has an appropriate chart title, the sales chart has not. The title can be set in the **General** dialog page, primarily used for choosing a chart type.

- 1 Right-click the sales chart and go to the dialog page **Chart Properties: General**.
- 2 Check **Show Title in Chart** if this has not already been done.
- 3 Enter the title *Sales Per Country*.
- 4 Click **OK**.

Like the following pictures show, the finished charts look much better after these basic modifications. We have now covered the most elementary steps available for making charts clean and simple.

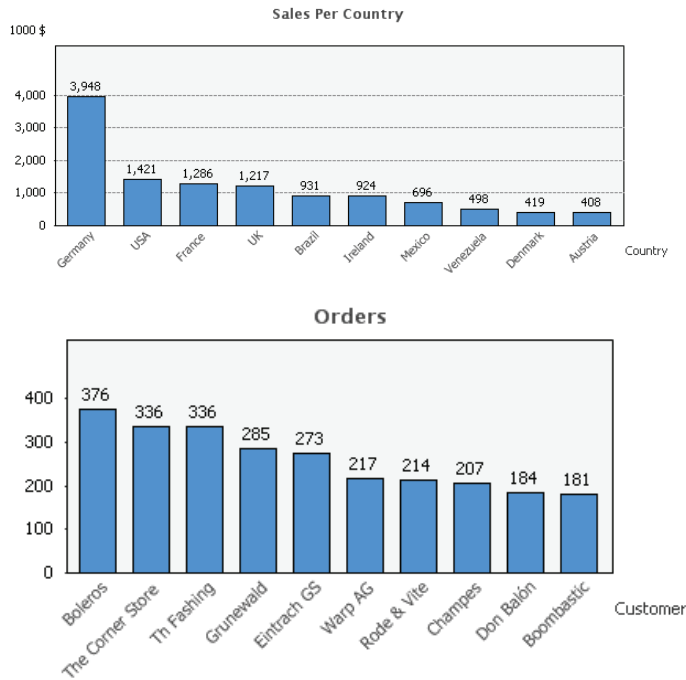


Figure 10. The finished charts

Other Chart Properties

In addition to those settings and properties that we have already mentioned, there are numerous others in the **Chart Properties** dialog. Some of the more important items contained in these pages are listed, below:

General

- check boxes for fast type change, calculation conditions and custom error messages

Dimensions

- a button for chart animation

#### Expressions

options for accumulation and trend lines

#### Style

a range of different looks to choose from, depending upon the chart type you have chosen

#### Presentation

contains further formatting options, including the ability to add x-axis scrollbars, formulaic text and reference lines

#### Colors

options for colors, transparency and background; set the colors for the bars and the chart background

#### Font

this page applies to all text in the chart, which has not been set to a font of its own in separate font controls (e.g. for axes).

#### Layout

holds the same options as for list boxes

#### Caption

holds the same options as for list boxes

Feel free to experiment with these settings and refer to the QlikView Reference Manual or online Help file for details.

## Common Chart Types

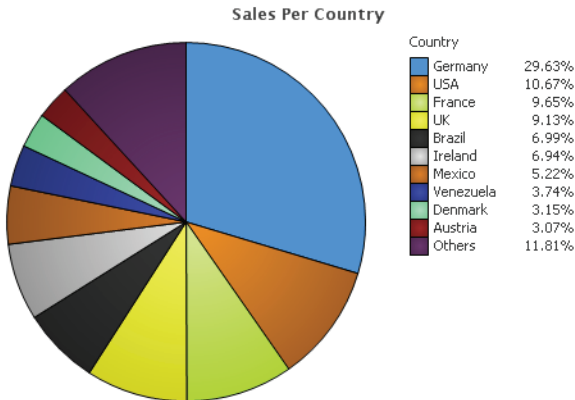
So far, we have only worked with bar charts. QlikView provides a whole range of other chart types. In this section we will present a gallery of some of the types.

### Pie Chart

To transform the *Sales* bar chart from the previous section into a pie chart, you simply:

- 1 Right-click the chart again and go to the dialog page **Chart Properties: General**.
- 2 Click the pie chart symbol.
- 3 Continue to the dialog page **Presentation**.

- 4 Check **Show Numbers in Legend** to have the values displayed in a legend inside the chart.
- 5 Click the **OK** button.



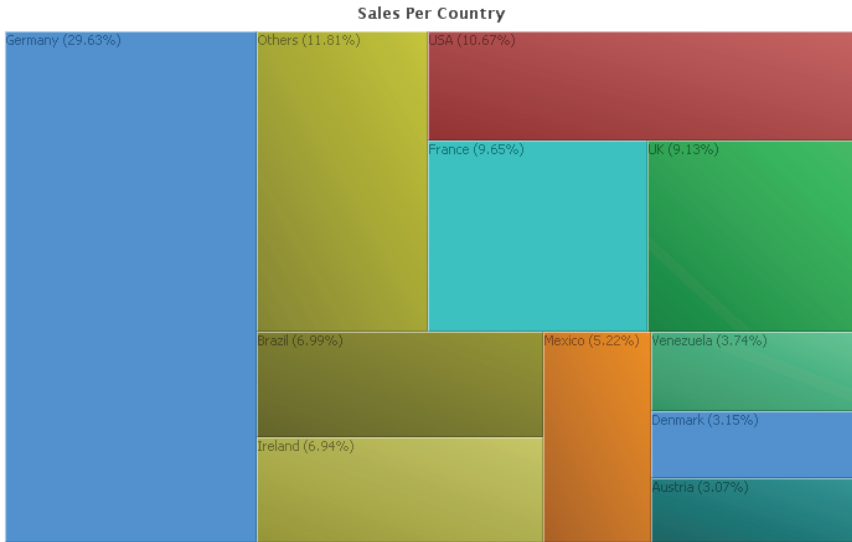
*Figure 11. The Sales chart, transformed into a pie chart*

In the same manner, you can turn your chart into most of the other available chart types. You should of course consider which chart type is best suited to the particular situation.

### Block Chart

We continue by transforming the pie chart into a block chart, in which the block area shows the relative size of each value:

- 1 Right-click the chart again and go to the dialog page **Chart Properties: General**.
- 2 Click the block chart symbol.
- 3 Click the **OK** button.



*Figure 12. The Sales chart transformed into a block chart (try to determine what else was changed to produce this block chart view of the data)*

### Straight table

When the program draws a graphical chart representation, the chart is actually based on an underlying table. The table can be displayed by transforming the chart itself. This is accomplished as follows:

- 1 Reopen the **Chart Properties: General** page.
- 2 Click the **Straight Table** symbol.
- 3 Click the **OK** button and adjust the columns as necessary.



Country	Sales
	13,321,238
Germany	3,947,735
Mexico	695,819
UK	1,216,681
Sweden	404,404
France	1,285,654
Spain	203,964
Canada	389,493
Argentina	84,037
Switzerland	101,367
Brazil	930,521
Austria	408,404
Italy	95,202
Portugal	97,982
USA	1,421,228
Venezuela	498,457
Ireland	924,285
Belgium	110,569
Norway	1,706
Denmark	418,967
Finland	50,136
Poland	34,626

Figure 13. The Sales chart, transformed as a straight table

## A Note About Mathematical Expressions

In the **Edit Expression** dialog, you can choose from the list of aggregation functions. We have been using the functions *Sum* and *Total Count* so far, but there are further functions to choose from. When you have picked a function, select the field whose values should be used for the calculation and click **Paste** to transfer your new expression into the **Expression** window.

If you should make a mistake, you can edit or delete the expression directly in this window. The **Edit Expression** dialog also keeps track of what you type, it offers **Undo** and **Redo** commands in its **Edit** menu and warns you with color or error messages if you use bad syntax or illegal fields in expressions.

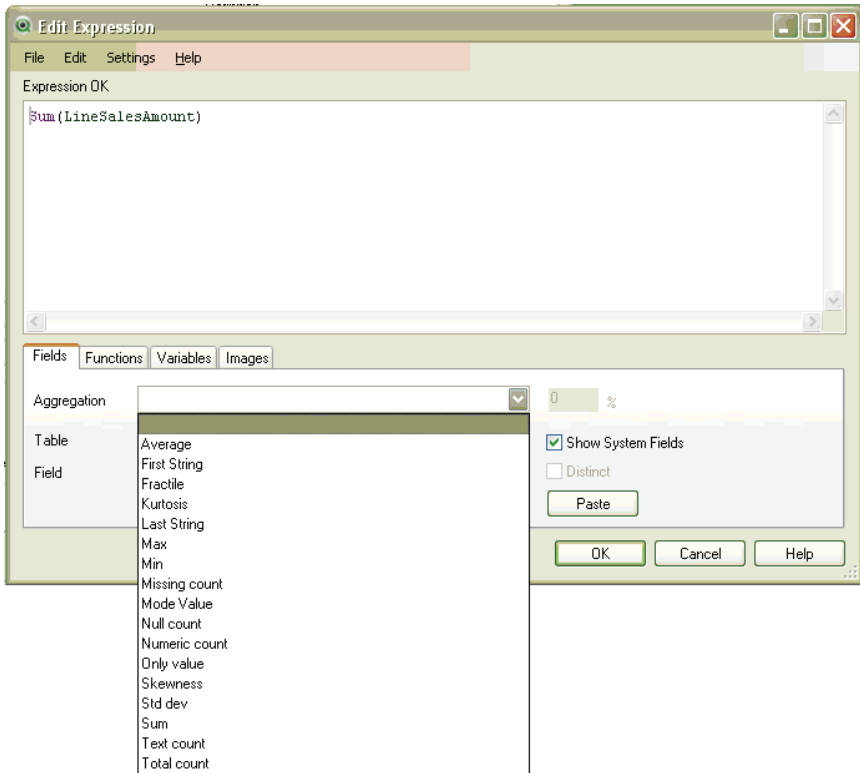



Figure 14. Choice of aggregation functions in the Edit Expression dialog

Some of the most commonly used functions are mentioned below. The QlikView Reference Manual and the Help provide complete descriptions of all aggregation functions.

Numeric count	The number of numeric values
Total count	The total number of values
Sum	The sum of possible numeric values
Average	The average of selected numeric values
Min	The smallest of the selected numeric values
Max	The largest of the selected numeric values
Only value	If there is only one value, this is shown

Generally, it is not possible to use more than one aggregation function on a field name (like a sum of averages of field values). In case you want to calculate such nested aggregations you will need a more complex syntax. Again, please refer to the QlikView documentation for more information on not only aggregation functions, but the entire library of functions available for use in calculations and expressions, or you can attend additional QlikView training.

**Tip:** Remember that functions and calculations can be used in text objects, and also anywhere you see the **Ellipsis** button  in QlikView.

## Exporting charts

There are many ways to export QlikView charts or chart data to files or other programs. All necessary commands are found in the chart's menu, opened by right-clicking the chart. The commands vary slightly depending on whether it is a graphical chart (like bar, line, pie or block chart) or a table chart (straight table or pivot table) but the functionality is similar.

### Print as PDF

Exports (prints) the chart to a PDF file. Visit [Qlikview.com](http://Qlikview.com) to download the QlikViewPDF printer driver, once installed, it can be selected from the *Printer Name* dropdown list when printing to a conventional printer

### Send Values to Excel for graphical charts

### Send to Excel

for table charts

Exports the table chart or the data behind the graphical chart to Excel.

### Export

Saves the chart to a file. For graphical charts you can choose between jpg, bmp, png or gif format. For table charts, QlikView offers even more formats, including several text formats, html, xml or xls.

### Copy to Clipboard

- Full Table - Table charts only
- Table Data Area - Table charts only
- Cell Value - Table charts only
- Values - Other charts only
- Image

- Object

## References in charts

In many cases, it is useful to compare chart data for different selections. For this purpose, you can use chart references.

- 1 On the *Sample* sheet, look at the bar chart *Sales per Country*. Clear all selections in case there are any.
- 2 Select *Men's Footwear* in the *Category* list box.
- 3 Right-click the bar chart *Sales per Country* and choose **Set Reference** from the menu. Now dimmed reference bars are displayed.
- 4 Select *Women's Footwear* in the *Category* list box. The current bars show the sales for women's footwear while the reference bars still show the sales for the previously selected men's footwear and you can easily compare the values.

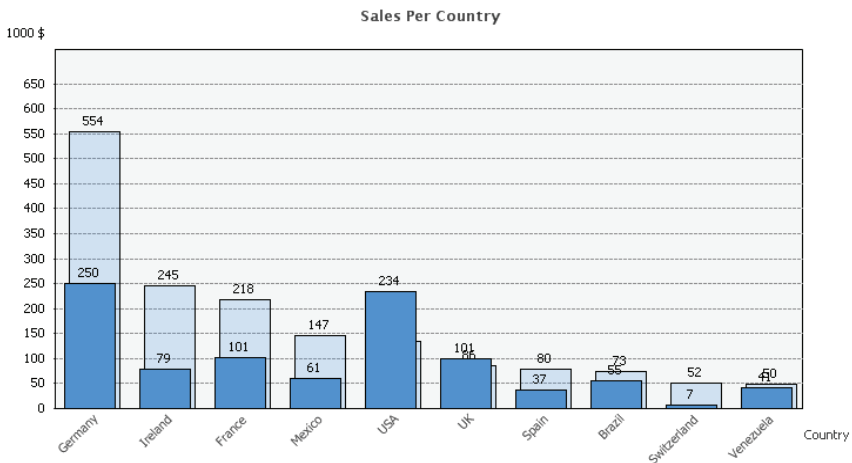


Figure 15. Set Reference

- 5 Right-click the chart again and choose **Clear Reference** from the menu.



## EXERCISE – CHART BASICS

### Do:

- 1 Navigate to the c:\QlikViewTraining\Designer\Chapter9 directory and open the **QVDesigner1\_Chapter9.qvw** file, or, if you are doing all the exercises in a linear progression, open the **QVDesigner1\_Student.qvw** file and continue to use it in subsequent chapters. This file is located in the c:\QlikViewTraining\Designer\ directory. Course files and data will still be accessed in the chapter directories.
- 2 Save a copy of the file to preserve the original in case you want to start again from the beginning later. Do this by using the **File | Save As** command. There is also a QlikView file ending in “\_Solution.qvw” containing the completed exercise for your reference.
- 3 Create a bar chart showing the sales per product category on the *Charts* sheet. You may use the **QuickChart Wizard** or the full **Chart Properties** dialog. Your chart should have the following properties:
  - *CategoryName* as x-axis dimension
  - Label the dimension *CategoryName* as *Category*
  - *Sum(LineSalesAmount)* as y-axis expression
  - *Sales Per Product Category* as chart title
  - The bars should be sorted by height, starting with the highest
  - There should be numbers indicating the y-values on the bars
  - The sales should be shown by 1000 \$
  - The dimension labels should be displayed diagonally
  - The chart should have multi-colored bars, but, in rare cases such as this one where multi-colored is selected, be sure to also check the **Persistent Colors** box (**Chart Properties: Colors** page).

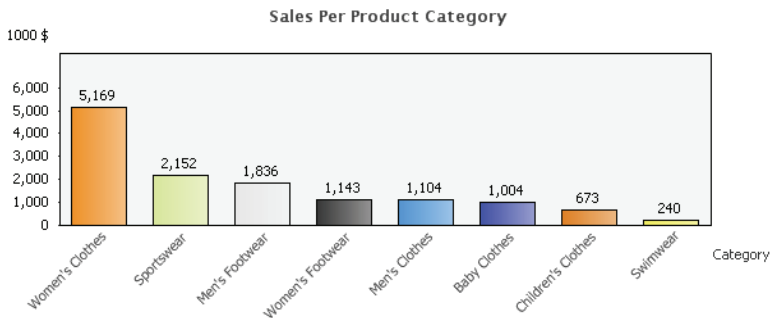
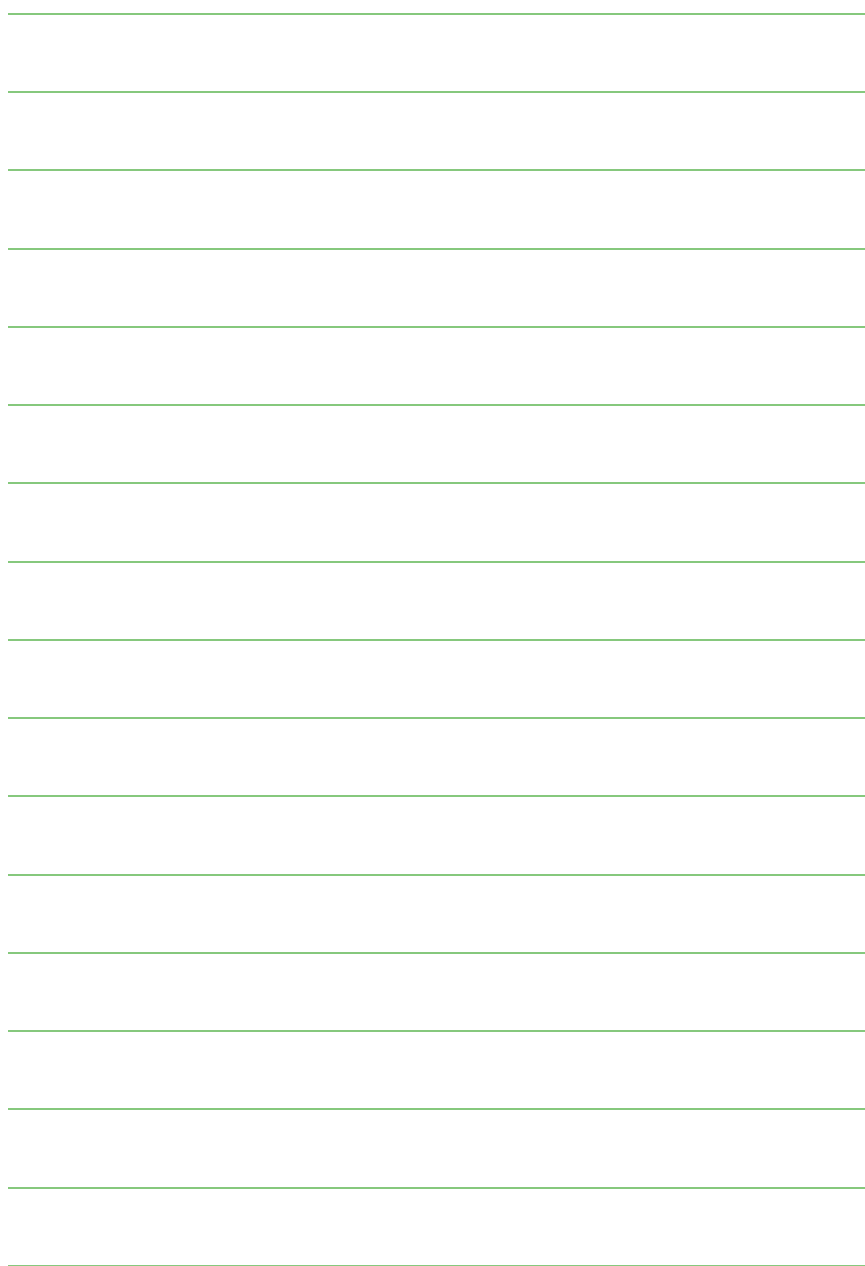


Figure 1. The completed chart





## EXERCISE – OPTIONAL ADDITIONAL CHARTING

### Do:

- Continuing with the chart from the exercise, in the **Chart Properties: Style** page, change the chart's orientation to display horizontal bars.

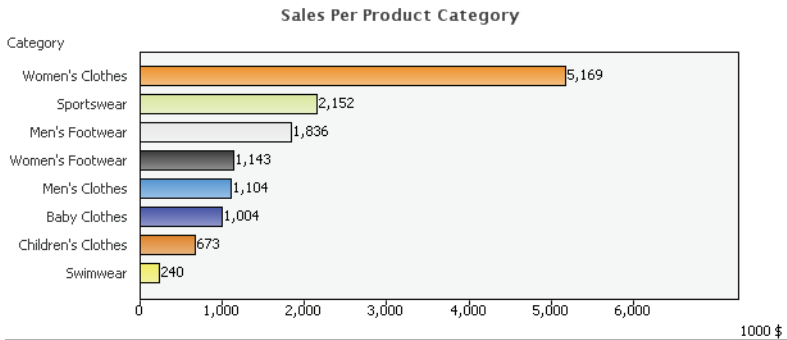


Figure 2. The chart from the previous exercise, with modifications

- Click on the **Chart Properties: Caption** page. It holds several settings for the chart's caption. Under Special Icons check *Print* and *Send to Excel*. Close all dialogs by clicking **OK** and test the new icons in the chart's caption.
- Create a pie chart showing the number of delivered orders per shipper. Your chart should have the following properties:
  - Shipper* as dimension
  - Count(OrderIDCounter)* as expression (either typed by hand or pasted in using the function wizard, in which case, the aggregation to select is "Total Count")
  - Shippers* as chart title
  - The slices should be sorted by y-value
  - There should not be numbers in the legend
- You can check the **Relative** option in the **Chart Properties: Expressions** page to show percentages instead of absolute numbers.

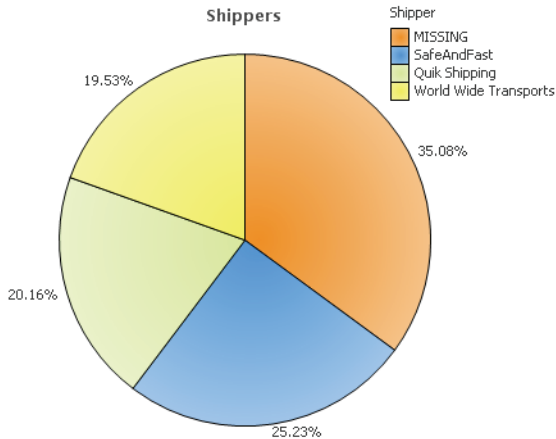
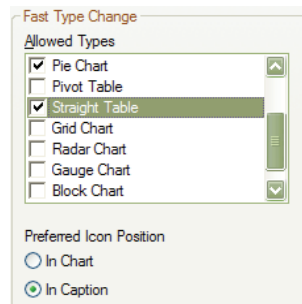


Figure 3. The completed pie chart

- 5 Modify the properties of this chart to allow users to change it from a **Pie Chart** to a **Straight Table** using the **Fast Type Change** check boxes in the **General** page. Be sure to check both types (you will need to scroll down to find the **Straight Table** check box).

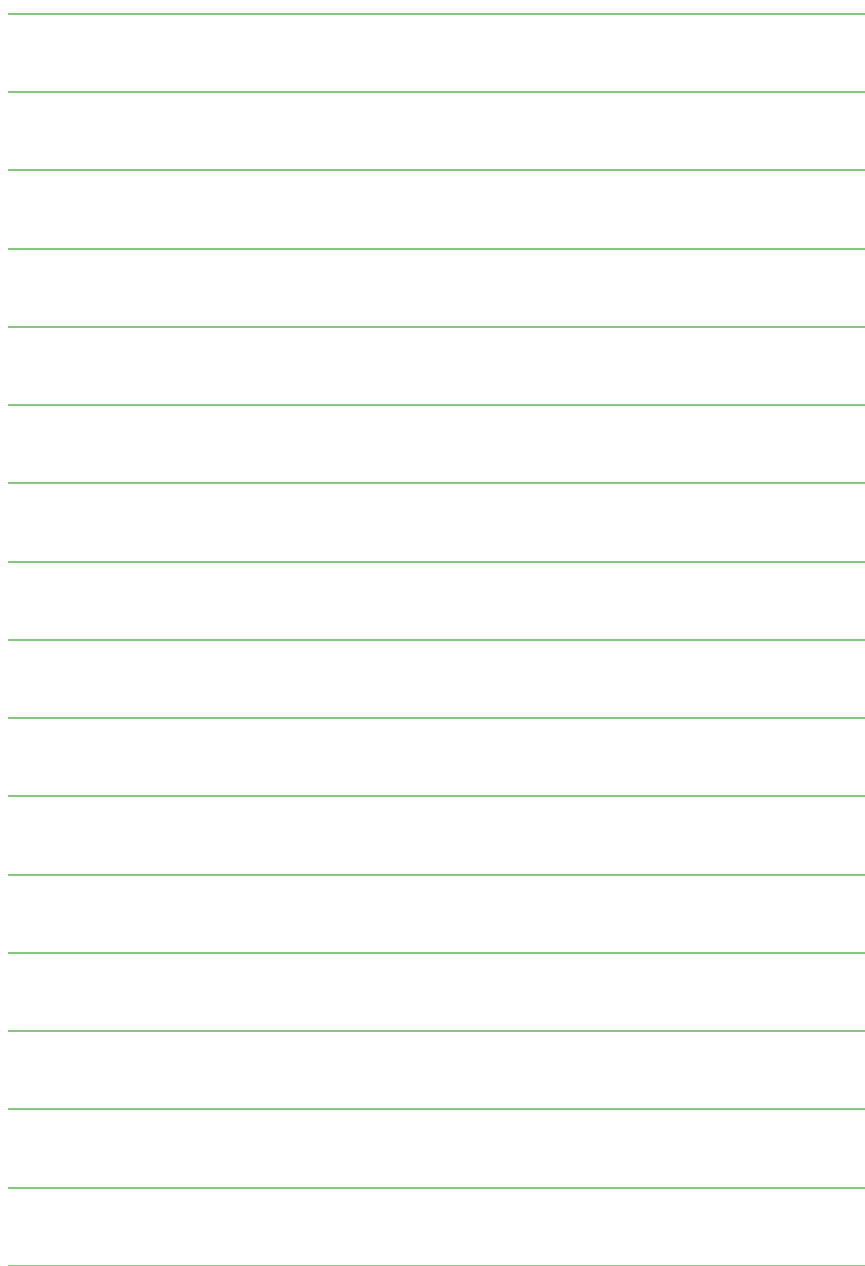
Here is how the completed chart would look when the Fast Type Change is used to convert it to a Straight Table:



Shippers % Fast Cha...	
Shipper	Shippers
	100.00%
MISSING	35.08%
Quik Shipping	20.16%
SafeAndFast	25.23%
World Wide Tran...	19.53%







## 10 THE QLIKVIEW SCRIPT: BASIC

### Objectives

- Introduce the QlikView load script
- Load data from Microsoft Excel
- Explore the structure of the data model in QlikView

QlikView layout design training is intended for designers who work mainly with existing QlikView applications. This chapter provides an overview over the process of loading data into a QlikView application and explains about basic concepts and procedures. You will also get an opportunity to load data into your QlikView file from an Excel spreadsheet.

This course does not cover scripting best practices or script management. These topics are covered in the QlikView Developer course offerings.

### Loading Data into QlikView

So far, we have been working with QlikView files that have already been loaded with the data needed to complete the exercises in the chapters. In this chapter, we will concentrate on how data is actually loaded into QlikView.

A QlikView document is created by retrieving data from one or several sources, e.g. from a relational database or from text files containing data tables. This retrieval is done by writing and executing a load script, in which the data source, the tables and the fields to be loaded are specified. In addition, the script offers possibilities to modify the data while loading. Simple scripts can be generated automatically with the tools included in QlikView.

When executing the script, the loaded data is kept in an internal data repository which is saved with the QlikView document. An evaluation of this data repository is made each time a value is selected in the document's layout. The figure below outlines how the different parts are related:

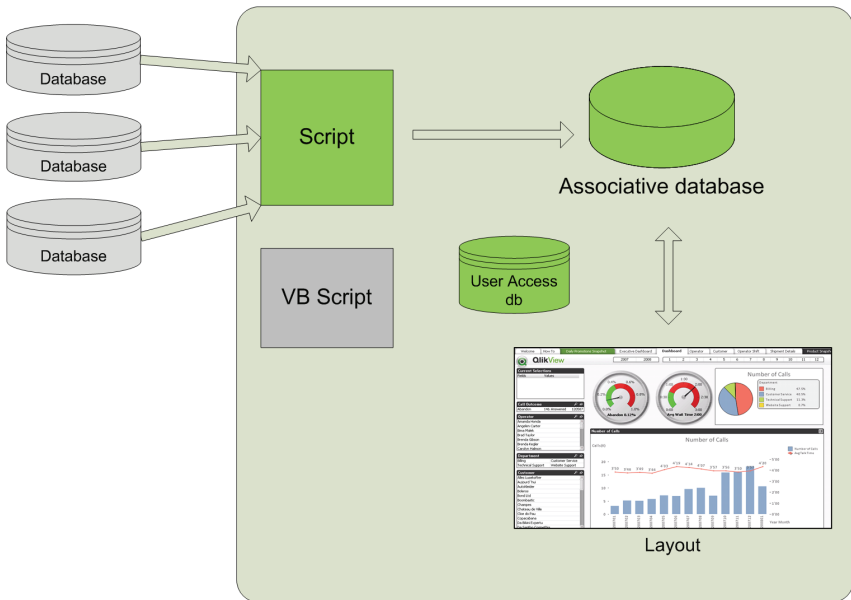


Figure 1. Loading and storing data from external sources in a QlikView document

## What data can QlikView read?

QlikView can handle the following types of data sources:

- Any type of character separated text files, e.g. comma separated files
- The result of a database query, made by SQL via OLE-DB/ODBC
- Previously created QlikView files (*binary files*); used to populate the data in your QVDesigner1\_Chapter10.qvw file
- QlikView QVD files
- Excel files in standard BIFF code
- Fixed format files
- DIF files
- HTML tables
- XML tables

With QlikView Desktop, a connection can be made to a data source residing locally or on a server. You can also connect via the Internet.

Finally, it is possible to include text files directly in the script and also to type in (preferably short) tables.

## Structure of the Data Repository

The data loaded by the script are stored in the document's data repository and saved with the .qvw file. You can see its structure using the **Table Viewer** which is opened from the **File** menu. This was discussed previously when we created a text object containing an image of the data structure taken from the table viewer. If you have completed that exercise, you will already have seen this image. If not, it is repeated, below.

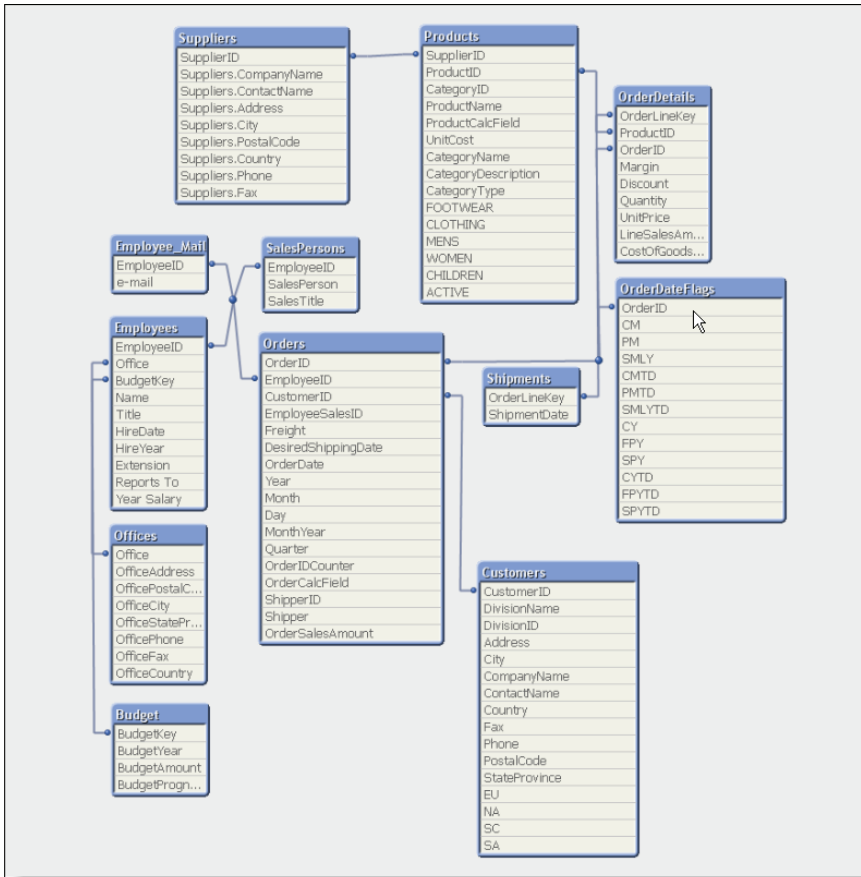


Figure 2. The Table Viewer shows the internal data structure of the QlikView document used in the QlikView Designer I course

The internal data structure consists of several tables. These are linked to each other via the key fields, i.e. fields with the same name occurring in more than one table.

The links between tables are used for logical connections. For example, when you select a customer, the respective data set in the *Customers* table will be logically connected with data from the *Orders* table having exactly the same value (in this case: customer name) in the key field *CustomerID*. Thus, logical connections propagate from one table to another via the key fields with every selection.

## The Edit Script Dialog

The data in our training document *QVDesigner1\_Chapter10.qvw* comes from the QlikView file used in the QlikView Developer class. That file is located in a subfolder called **DataSources**.

Now it's time to have a look at the load script. Click the **Edit Script** button in the toolbar to open the **Edit Script** dialog.

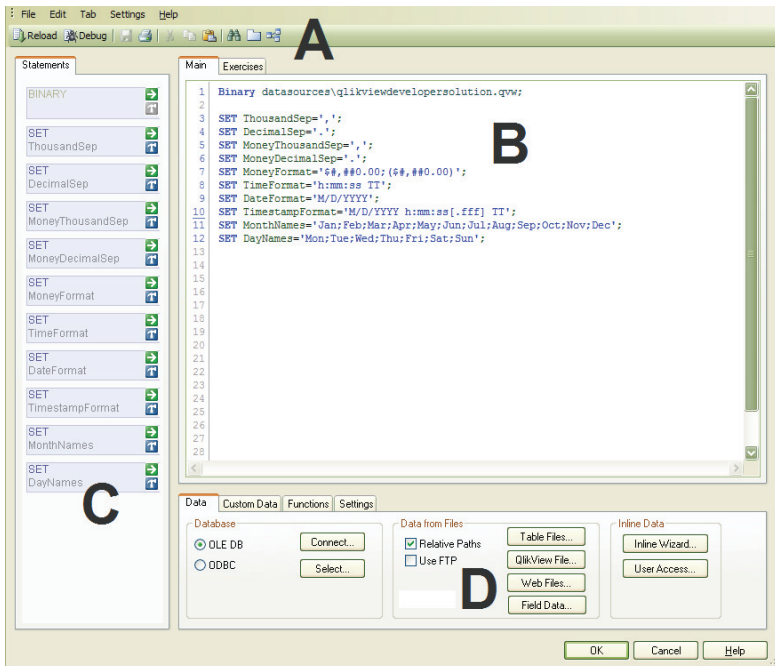


Figure 3. The Edit Script dialog – A: Menu Buttons, B: Script area, C: Statements pane, D: Tool pane

The dialog has a menu, a toolbar and several controls and settings. Again, the Developer class goes into greater detail than we will here.

The large pane in the center shows the syntax of the current script. It starts with the **Binary** statement, loading data from another Qlikview file, and is followed by **SET** statements defining general number, date and time formats. Whether you type the script directly or use the wizards to create it a range of **load** statements are used to read the data from the data source. Please have a look at the following **load** statement:



```

1  Binary datasources\qlikviewdevelopersolution.qvw;
2
3  SET ThousandSep=',';
4  SET DecimalSep='.';
5  SET MoneyThousandSep=',';
6  SET MoneyDecimalSep='.';
7  SET MoneyFormat='€#,##0.00;({€#},##0.00)';
8  SET TimeFormat='h:mm:ss TT';
9  SET DateFormat='M/D/YYYY';
10 SET TimestampFormat='M/D/YYYY h:mm:ss[.fff] TT';
11 SET MonthNames='Jan;Feb;Mar;Apr;May;Jun;Jul;Aug;Sep;Oct;Nov;Dec';
12 SET DayNames='Mon;Tue;Wed;Thu;Fri;Sat;Sun';
13
14 /*The following script is included as an example to illustrate some of the transformative
15 functions in QlikView. It is commented, presented here for illustrative purposes only.
16 *****/
17 Orders:
18 LOAD CustomerID,
19      EmployeeID,
20      EmployeeID AS EmployeeSalesID,
21      Freight,
22      OrderDate,
23      Year(OrderDate) AS Year,           //Returns the Year value of the OrderDate field
24      Month(OrderDate) AS Month,         //Returns the Month value of the OrderDate field
25      Day(OrderDate) AS Day,             //Returns the Day value of the OrderDate field
26      OrderID,
27      OrderID AS OrderIDCounter,
28      ShipperID;
29 SQL SELECT *
30 FROM Orders ORDER BY OrderDate ASC; //The ORDER BY and ASC will sort the table in
31                                     //ascending order based on the OrderDate
32

```

You can read this syntax as follows:

- Specification of the table name to be used in the internal database, followed by a colon, in this case, it is **Orders**
- **LOAD** statement, followed by a list of fields to be loaded, followed by the
- **FROM** clause defining from which file the data should be read and which formats are used.

The **load** statement in the example for the *Orders* table uses date functions on the field *OrderDate* to generate the fields *Day*, *Month* and *Year*.

QlikView offers a large number of script functions, which you can look up in the QlikView Reference Manual or in the Help if necessary.

Don't worry too much if you don't understand the entire script in detail. You will get a chance to use the script editor in the exercise for this chapter when you load data into QlikView from an Excel file.

## Executing the script



The easiest way to update the data in a QlikView application is to perform a reload. You can use the **Reload** button to execute the existing script. This will update the QlikView document from its data sources. Whenever the data sources have been modified you should update your QlikView application by performing a reload.

Applications deployed in an enterprise environment are usually updated via a scheduled process, managed in conjunction with QlikView Server and QlikView Publisher. The application manager may deny users the privilege to perform updates.

## Loading files with the Table File Wizard

Let's see how data from an additional Excel file can be loaded. We are going to assume you are a Human Resources manager and have just obtained some information about your employee performance evaluations and raises and would like to bring that into your QlikView file *without having to request an update from the (HRIS) Human Resources Information System*. This will allow you to do some quick calculations.





## EXERCISE: LOADING FILES WITH THE TABLE FILE WIZARD

### Do:

- 1 Navigate to the c:\QlikViewTraining\Designer\Chapter10 directory and open the QVDesigner1\_Chapter10.qvw file, or, if you are doing all the exercises in a linear progression, open the QVDesigner1\_Student.qvw file and continue to use it in subsequent chapters. This file is located in the c:\QlikViewTraining\Designer\ directory. Course files and data will still be accessed in the chapter directories.
- 2 Open the file **Reviews\_Raises.xls** in the **Datasources** folder for this chapter and have a look at its content in Excel.
- 3 Go back to QlikView and open the **Edit Script** dialog.
- 4 Scroll down and position your cursor at the very end of the script.
- 5 Type *Reviews\_Raises:* (Please don't forget the colon!).
- 6 In the bottom under **Data from Files**, make sure that the option **Relative Paths** is checked, and click the **Table Files** button.
- 7 Search for the file **Reviews\_Raises.xls** and click **Open**.

You have now opened the Excel file in the **Table File Wizard**.

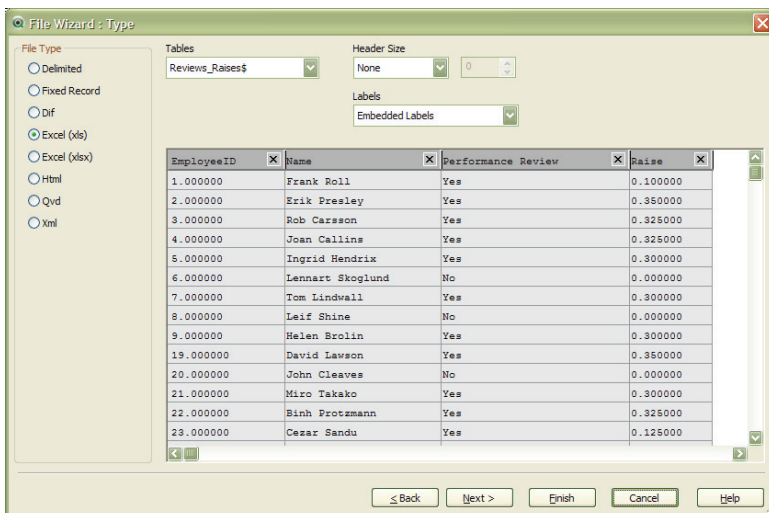


Figure 1. The Table File Wizard analyzes the file and generates the load statement



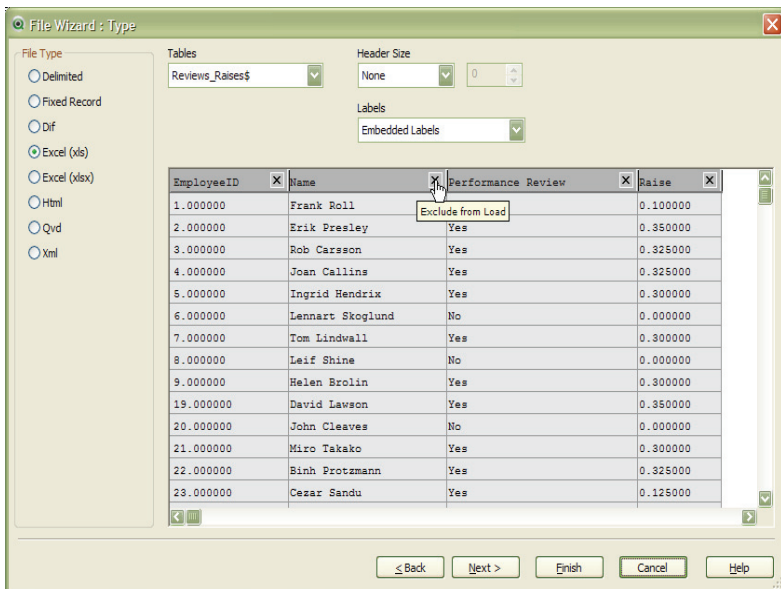
When opening a table file, the program tries to interpret the contents and formats of the file. This interpretation is reflected in the parameters in the upper half of the dialog. The lower half contains a preview pane where you can check whether this interpretation is correct.

Usually, QlikView recognizes table file formats very well and you don't need to do anything more. Nevertheless, if you notice that the table is not interpreted properly, you can change the initial values manually.

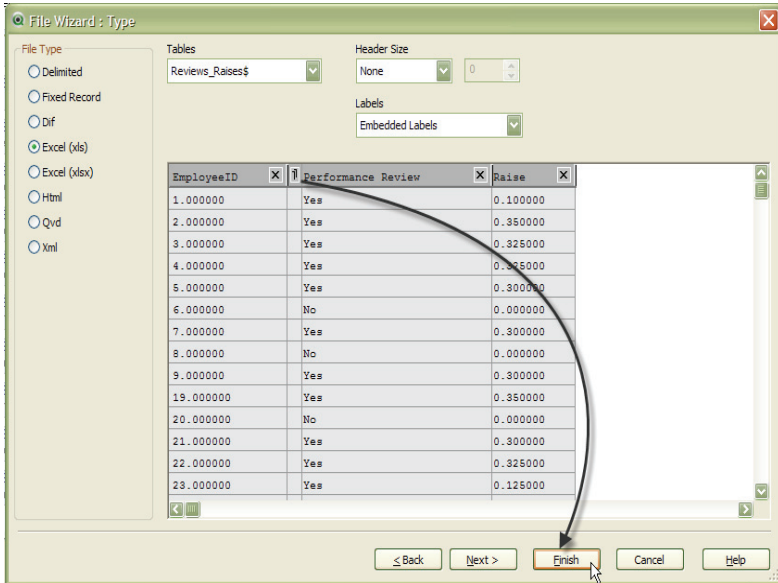
In our case, the preview looks correct. The field names are found in the first line. The columns contain the respective data.

To avoid problems with the data already in our QlikView file, we will delete the *Name* column before loading the file.

- 8 Click on the green X at the top of the *Name* column to remove it



- 9 Click **Finish**.



You are now back in the **Edit Script** dialog and the wizard has generated a **load** statement for the *Reviews\_Raises* table file. Furthermore, there is a **directory** statement, which you can ignore (or even delete, if you like). You may also notice that there are square brackets around field names when these contain spaces.

- 10 Click the **Reload** button in the **Edit Script** dialog to execute the script and to load the data.
- 11 The **Sheet Properties: Fields** page is opened and when you scroll down the field list you will find the new fields from the *Reviews\_Raises* table. These fields can now be used in sheet objects
- 12 Close the dialog.
- 13 Choose **Table Viewer** from the **File** menu and see how the *Reviews\_Raises* table has been integrated in the internal database.

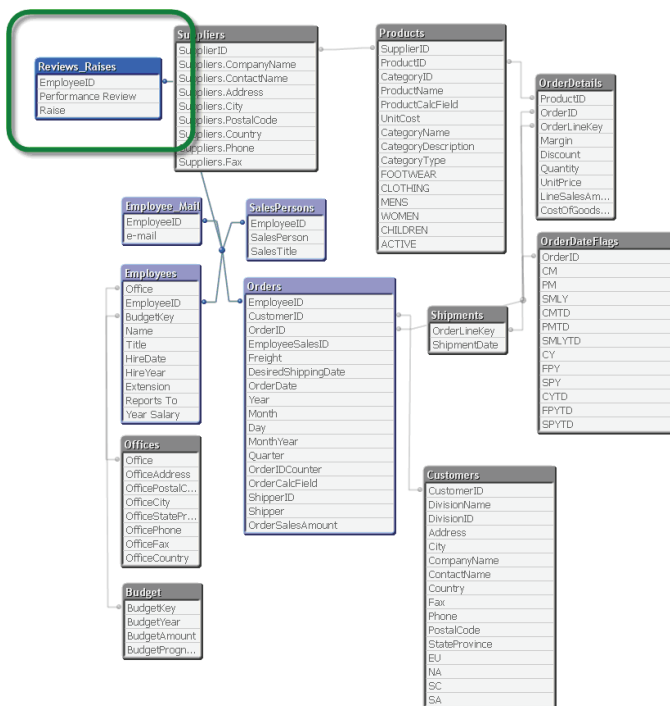


Figure 2. The *Reviews\_Raises* table in the internal database

QlikView automatically sets up an association between the *Reviews\_Raises* and the *Employees* tables because both contain the key field *EmployeeID*.

Whenever you plan to load a table into your document you should think of what data it holds, what existing table it could or should be associated with and what field would be suitable to be used as a key field.

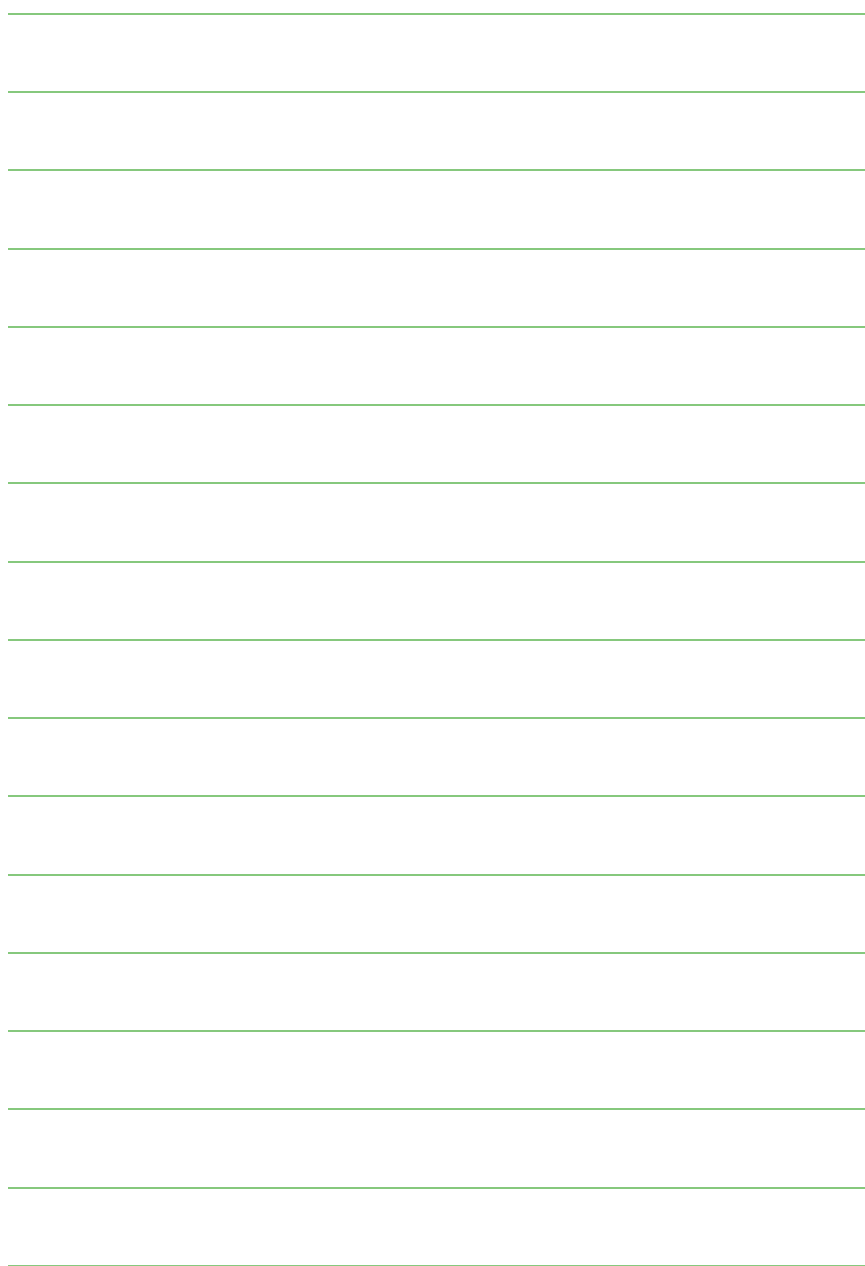
Two tables should not have more than one field in common, otherwise the values of the key fields will be combined in a composite (synthetic) key which requires a separate table and may slow down the performance of the application.

## Renaming Fields while Loading

You have learned by now that two tables are associated via the field they have in common. The criteria for two fields to be associated is that they



have exactly the same name. However, in real life, fields that should be associated do not always have the same name in their data sources. Therefore, the renaming of fields during the load process is a common procedure when building the QlikView data structure. You may also rename fields to prevent associations that would not be appropriate.





## EXERCISE: RENAMING FIELDS WHILE LOADING

### Do:

There is another Excel file to load in the **DataSources** folder:

**Retirement\_Accounts.xls**.

- 1 Open the file **Retirement\_Accounts.xls** in the **DataSources** folder and have a look at its content.

Do you have an idea of how the *Retirement\_Accounts* table could fit in the existing data structure?

The *Employees* table holds a field called *EmployeeID* containing numbers identifying employees in the HRIS system. This field can be used as a key field to associate the new *Retirement\_Accounts* table. But in the *Retirement\_Accounts* table this field is called *EmpID* instead of *EmployeeID*. To achieve the proper association, we will rename the field *EmpID* to *EmployeeID* when loading the *Retirement\_Accounts* table.

- 2 Go back to QlikView and open the **Edit Script** dialog.
- 3 Scroll down and position your cursor at the very end of the script.
- 4 Type *Retirement\_Accounts*: (Please don't forget the colon!).
- 5 In the bottom under **Data from Files** click the **Table Files** button.
- 6 Search for the file **Retirement\_Accounts.xls** and click **Open**.
- 7 Make sure that the **Table File Wizard** interprets the table structure properly.
- 8 In the preview pane, click the header of the first column. You are now in the edit mode. Change the name from *EmpID* to *EmployeeID* and press **Enter**.

	EmployeeID	Empy_Name	Account_Active
1		Frank Roll	Yes
2		Erik Presley	Yes
3		Rob Carsson	Yes
4		Joan Callins	Yes
5		Ingrid Hendrix	Yes
6		Lennart Skoglund	No
7		Tom Lindwall	Yes
8		Leif Shine	No
9		Helen Brolin	Yes

Figure 3. Renaming a field in the Table Files Wizard

- 9 Click **Finish** and have a look at how the renaming is coded in the **load** statement in the **Edit Script** dialog.



- 10 Click the **Reload** button in the **Edit Script** dialog to execute the script which loads the data.
- 11 The **Sheet Properties: Fields** page is opened and when you scroll down the field list you will find the new fields from the *Retirement\_Accounts* table. These fields can now be used in sheet objects
- 12 Close the dialog.
- 13 Open the **Table Viewer** and make sure that the association has been established as expected.

Just in case something went wrong or you notice that the association is not adequate, you can edit the script syntax directly in the **Edit Script** dialog without passing through the **Table File Wizard** again. You may remove the **as** to undo the renaming or you may enter an **as** for another field in the field list of the **load** statement. Do not forget to perform a reload after changing the script. Your changes will only take effect when the script is executed.



## 11 THE SETTINGS MENU

### Objectives

- Define useful user preferences and options
- Save copies of your work automatically
- Learn about memory resources, exporting and printing, security

All of the material in this chapter can be found in the online Help or the Reference Manual. The following information is provided for reference as you work to complete the course exercises.

Obviously, for fully detailed information, please refer to the online Help and the Reference manual.

### User Preferences

From the **User Preferences** dialog you can set your personal preferences for the way QlikView behaves on your computer.

Choose **User Preferences** under the **Settings** menu.

#### User Preferences: General

The **General** page contains several very useful options. Most of these are self-explanatory. We would like to highlight one useful setting.

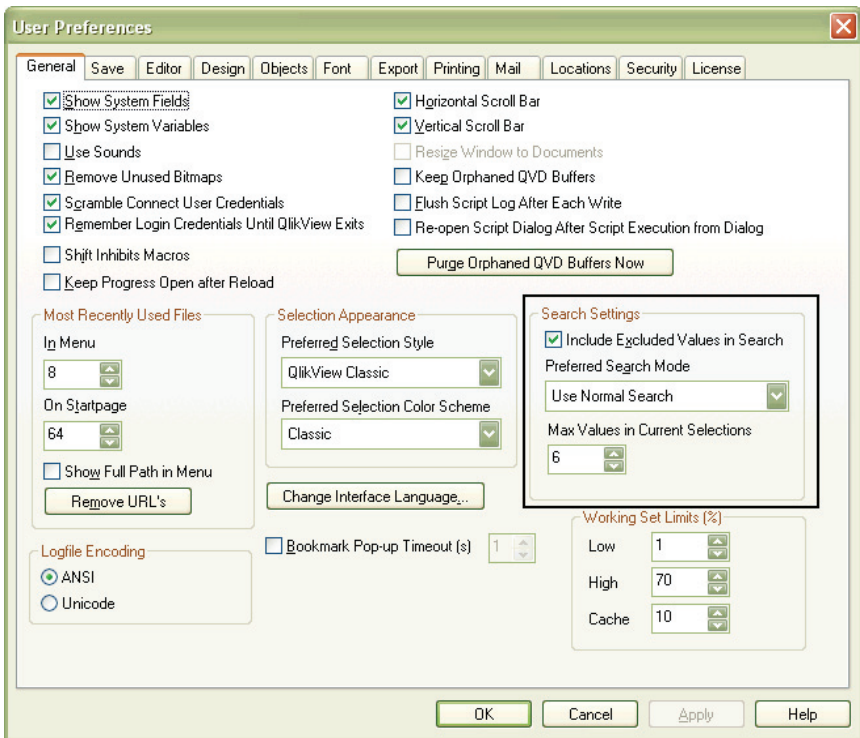


Figure 1. The dialog page User Preferences: General

#### Include Excluded Values in Search

When this option is checked, free text searches will include every value in a field, also those that are currently excluded by selections in other fields.

#### User Preferences: Save

The **Save** page is used for managing automatic backup routines. During the process of building a QlikView application, it is a good idea to turn these options on to enable you to recover from development mishaps or mistakes. Obviously, the more of these options you set, the more disk/file space you will use.

### User Preferences: Editor

The **Editor** page is used for making font related settings that are used in the script editor, the expression editor and in the macro editor.

### User Preferences: Design

The **Design** page contains several advanced features related to the macro functionality and to the general design.

### User Preferences: Objects

In the **Objects** page you can determine how the memory resources are allocated in QlikView.

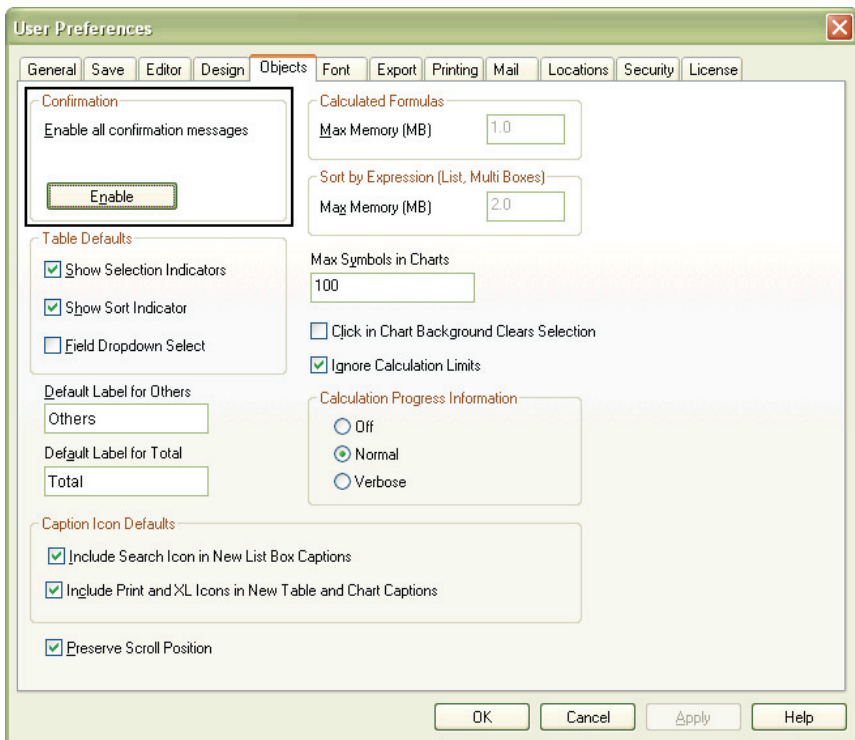


Figure 2. The dialog page User Preferences: Objects

Some useful settings are:

Enable all confirmation messages

When you remove a sheet or sheet object you are by default asked to confirm the action. In case you deactivated these warnings, you can click on this button to enable them again.

Click in Chart Background Clears Selection

With this setting on you can clear selections directly in charts by clicking in the chart background.

### User Preferences: Font

Use the **Font** page to set the **Font**, **Font Style** and **Size** of the font to be used.

### User Preferences: Export

The **Export** page is used for modifying the number format and layout of data that is exported from QlikView. There are numerous settings. For the purposes of this course, they are considered self-explanatory.

### User Preferences: Printing

The **Printing** page takes care of a few default layout settings for printout.

### User Preferences: Mail

The **Mail** page contains settings for sending e-mail from QlikView, such as would be required to activate alerts. To use this functionality you must have access to an SMTP server.

### User Preferences: Locations

The **Locations** page is used for determining default folder locations for certain files created when working with QlikView and was reviewed previously in relation to setting the location of the QlikView Theme (qvt) files.

It also shows the options for configuring the locations for QlikView Server and Publisher. These are covered in a separate course.

### User Preferences: Security

The **Security** page gives you the ability to override some of the security features set by default. These are rarely changed here. Security is covered in the Developer class. Do not change the settings unless you know what you are doing!

### User Preferences: License

The **License** page is primarily used if you ever need to edit your license number for the QlikView copy installed on your computer. QlikTech Support can assist you with problems relating to license key validation where

your corporate firewall might be blocking access to the QlikView license server.

**Note:** Do not click **Unregister** unless you are really determined to unregister the licensing information. Unregistration occurs immediately, without any further warning.

## Document Properties

In the **Document Properties** dialog you can set preferences that are specific to the current QlikView document (qvw file).

Choose **Document Properties** from the **Settings** menu. There are 15 dialog pages, but we will only deal with the most important ones here.

### Document Properties: General

Figure 3. The dialog page Document Properties: General

The most important options are:

#### Title

This is where you name the document. The title will be visible in the QlikView title bar.

### Default Sheet Background

A handy way to change the layout for the default sheet background. You may either choose a **Background Color** or a **Wallpaper Image**.

### Save Format - Compression None/Medium/High

The high compression rate makes the file much smaller, while costing a little more in terms of performance.

QlikView files are actually quite compact to begin with, but once in a while you may need to save a file in extra compact format. With the high compression setting, a qvw file will typically be reduced by 85%. This will slightly increase the time it takes to open the file.

## Document Properties: Opening

The **Opening** page makes it possible to select a picture to be displayed and/or a sound file to be played when the document is opened. It also contains more advanced functionality.

## Document Properties: Sheets

The **Sheets** page can be used for keeping track of all sheets and sheet objects in the document.

**Note:** Sometimes a sheet object is inaccessible from the sheet layout because it is hidden beneath another object, it has ended up outside the visible part of the window or it has a show condition. Here it is easy to find an object in the list and then enter by the "back door" into its property dialog by means of the **Properties...** button.

## Document Properties: Server

The **Server** page is used to define certain aspects of the QlikView document's behavior when run on a QlikView Server. Some of the details surrounding the refresh mode are covered in a different class. Similarly, server bookmarks, objects and reports are covered in other QlikView training courses. In summary, with:

- **Server Bookmarks** – remote clients can create and share bookmarks with this document on the QlikView Server.
- **Server Objects** – remote clients can create and share sheet objects with this document on the QlikView Server.
- **Server Reports** – remote clients can create and share reports with this document on the QlikView Server.

The settings on this page define the document's behavior when run on QlikView Server

Refresh Mode when Document is Updated on Server  
 Client initiates refresh. If old data not kept in server or client too old, session will be disconnected.

Client Refresh Initiation Mode  
 Indicate with toolbar button.

**QlikView Server Collaboration**

- ☒ Allow Server Bookmarks
- ☒ Allow Server Reports
- ☒ Allow Server Objects

☐ Maximum Inactive Session Time (seconds)  
 300

☐ Enable Push from Server

☐ Maximum Total Session Time (seconds)  
 600

☐ Enable Dynamic Data Update

Figure 4. Server Page, Document Properties

## Document Properties: Variables

The **Variables** page is intended for the handling of variables. A variable is often a value that changes, such as an exchange rate from \$ to €, which can be updated with user input, or based upon a user selection.

## Document Properties: Security

In the **Security** page you may specify certain limitations to the **User Privileges**. The reasons to do this could be that you want to protect the layout of the document from harm or that you want to hide sensitive data. Users with User privileges cannot open the security dialog pages for the document or the sheet. The privileges are set in the script. Privileges and security are advanced properties that are not covered by this course. (Note that because nothing is stated in the access restrictions database, you are automatically granted administrator privileges in this document.)

## Document Properties: Triggers

The **Triggers** page is used in some advanced applications and is not covered by this course.

## Document Properties: Groups

The **Groups** page is used for creating field groups. Groups can be used for increasing the information density in a chart. By specifying a group rather than a field, you can let the chart switch between dimensions along the x-axis.

Open the **Document Properties: Groups** dialog in your course file and you will find that a group is already defined. It can be found in the left column. If you click it, you can see what fields have been used for defining it.

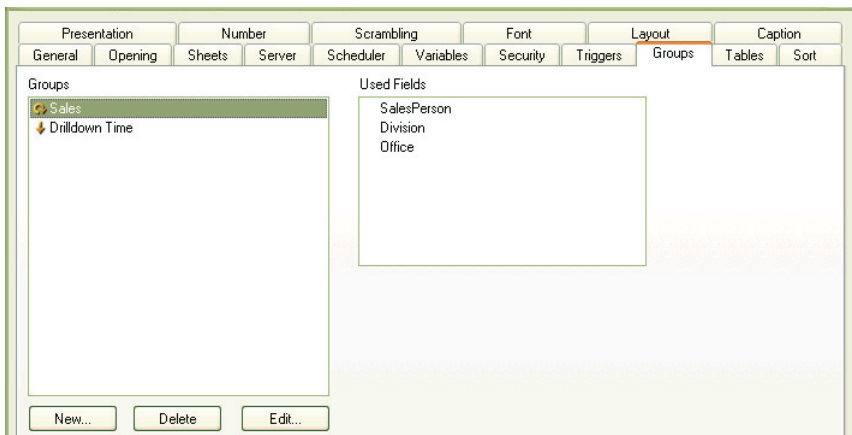



Figure 5. The dialog page *Document Properties: Groups*.


A group may be set to either drill-down or cyclic display, as indicated by small symbols to the left of each group:

### Drill-down

With this setting, the level of detail will gradually increase when you make your selections in the group. You can recognize a drill-down group by the small icon  that is shown next to the group name. You can click the icon to drill back upwards through the hierarchy. This symbol is also displayed in a chart containing a drill-down group.



### Cyclic

With this setting  you may select which of the fields of the group will be displayed. You can switch between fields just by clicking the small icon next to the field name.

### Document Properties: Tables

The **Tables** page is used for advanced script management and is not covered by this course.

### Document Properties: Sort

This is where you determine default sort order settings to the fields of the current document. These settings are applied when new sheet objects are created.

### Document Properties: Presentation

This is where you determine default adjustment settings to the fields of the current document. These settings are applied when new sheet objects are created.

### Document Properties: Number

This is where you determine default number formatting settings to the fields of the current document. These settings are applied when new sheet objects are created.

### Document Properties: Scrambling

The **Scrambling** is only available when working with a QlikView document in ADMIN mode. With it, you can scramble the data in one or more fields to quickly render their contents anonymous. This can be particularly useful with sensitive information.

**Note:** Numbers are scrambled to numbers and text to text (spaces are kept). Once scrambled, the data cannot be recreated in its original form by QlikTech or anyone else. If you re-execute the script, however, the scrambling will be lost.

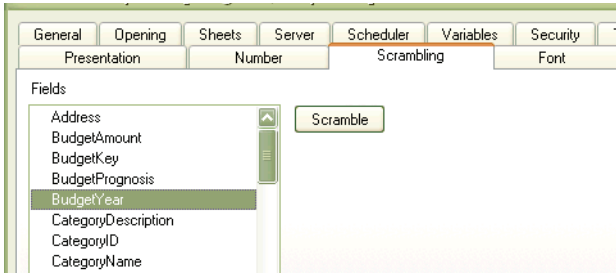


Figure 6. The Scrambling Page

### Document Properties: Font

This is the general font dialog, which is used for determining default font settings to the sheet objects of the current document.

### Document Properties: Layout

This is the general layout dialog, which is used for determining default layout settings to the sheet objects of the current document.

## Sheet Properties

In the **Sheet Properties** dialog you can set preferences that are specific for a certain sheet of the QlikView document. Any changes that are made will only affect the objects of the current sheet. Some of the dialog pages have an option **Apply to All** sheets, though.

To open the dialog, choose **Sheet Properties** in the **Settings** menu or right-click the sheet and choose **Properties** from the menu.

There are 7 dialog pages.

### Sheet Properties: General

Here you can specify a **Title** and **Wallpaper** for the current sheet. This is also where you can reach the tab color settings.

One important setting is **Show Sheet**, where a show condition can be entered.

### Sheet Properties - Fields

This is the same dialog page that is opened when you use the menu command **Layout – Select fields** for adding list boxes to the sheet.

### Sheet Properties: Objects

The **Sheet Properties: Objects** page helps you keep track of all sheet objects residing on the current sheet.

**Note:** If you cannot see a sheet object in the layout, it can still be reached from this dialog.

### Sheet Properties: Security

This dialog page is similar to the **Document Properties: Security** dialog page, but it contains security settings on the object level. This is the most convenient place for you to protect the layout with all its sheet objects from accidental corruption.

**Note:** Be aware that the option **Admin Override Security** in the **Document Properties: Security** dialog page overrides all security settings of the sheet.

### Sheet Properties: Triggers

The dialog page **Sheet Properties: Triggers** is used for creating macros that are triggered by sheet events and sheet object events. As previously stated, macro functionality is not covered by this course.

### Inherited settings

Many of the settings described above may be defined for a single sheet object in the **Object Properties** dialog, for all objects on the current sheet in the **Sheet Properties** dialog or for all objects in a document in the **Document Properties** dialog.

In these cases, QlikView works according to the principle of hierarchical heritage. A setting made on a higher level (e.g. in **Document Properties** or **Sheet Properties**) will propagate downwards to lower levels (e.g. **List Box Properties**).

### Settings with Immediate Propagation

An inherited setting with immediate propagation will affect all objects on a lower level as soon as it is executed. An example of such a setting is **Font**. If the font is changed under **Document Properties**, the font will immediately change in all sheet objects in the entire application. The same is true for settings in the **Layout** page.

### Settings with Default for New Objects

In other cases, changing a setting on a higher level will only establish a new default to be used when new sheet objects are created. If you change **Alignment** for a field under **Document Properties**, nothing will happen until you create a new sheet object using that field. Existing sheet objects based on the same field will not be affected.

In the same token, if adjustments are made to the **Layout** or **Font** settings for a single sheet object, these settings will continue to be applied when new objects are created in the document.



## Exercises

### Do:

- 1 Navigate to the c:\QlikViewTraining\Designer\Chapter11 directory and open the **QVDesigner1\_Chapter11.qvw** file, or, if you are doing all the exercises in a linear progression, open the **QVDesigner1\_Student.qvw** file and continue to use it in subsequent chapters. This file is located in the c:\QlikViewTraining\Designer\ directory. Course files and data will still be accessed in the chapter directories.
- 2 Earlier in the course we configured our QlikView environment for automatic backups. Confirm those settings here. In the **User Preferences**, check the settings on the **Save** page to provide (“Use”) backup copies of your QlikView application
- 3 Also in **User Preferences**, **Enable** all confirmation messages on the **Objects** page
- 4 Confirm the file locations in the **User Preferences: Locations** page.
- 5 Give your QlikView document a meaningful title using the **Document Properties: General** page. Also, add yourself as the primary Author.  
Change or remove the *Default Sheet Background Wallpaper Image*.
- 6 Experiment with hiding the tabrow.
- 7 Check the General Logfile checkbox. This will create a logfile every time you reload the data into the QlikView file.
- 8 On the **Document Properties: Opening** page, select an image or sound file or both to use as a splash screen whenever your QlikView document is opened.



Presentation		Number		Scrambling		Font	Layout	Caption	
General	Opening	Sheets	Server	Scheduler	Variables	Security	Triggers	Groups	Tables
<p>Title Designer I, Chapter 11</p> <p>Author RLR, et al</p> <p>Save Format Compression: High</p> <p>Alert Pop-ups... Help Pop-ups... Memory Statistics... Reset IDs</p> <p>Default Sheet Background</p> <p><input checked="" type="checkbox"/> Background Color <input checked="" type="checkbox"/> Wallpaper Image</p> <p>Image Formatting: No Stretch Horizontal: Left Vertical: Top</p> <p>Styling Mode: Advanced Sheet Object Style: Glass Tabrow Style: Oblique</p> <p>Selection Appearance Style: QlikView Classic Color Scheme: Lime</p> <p>Tabrow Background</p> <p><input type="checkbox"/> Use Passive FTP Semantics <input type="checkbox"/> Generate Logfile <input type="checkbox"/> Timestamp in Logfile Name <input type="checkbox"/> Disable F1 Help <input type="checkbox"/> Hide Unavailable Menu Options <input type="checkbox"/> Hide Tabrow <input type="checkbox"/> Keep Unreferenced QVD Buffers <input type="checkbox"/> Legacy Fractile Calculation <input type="checkbox"/> Disable Layout Undo Default Export Encoding: ANSI</p>									

Presentation		Number		Scrambling		Font
General	Opening	Sheets	Server	Scheduler	Variables	Security
<p><input checked="" type="checkbox"/> Image</p> <p>Select...</p> <p><input type="checkbox"/> Close on Mouse Click</p> <p><input checked="" type="checkbox"/> Close after 4 Seconds</p> <p><input checked="" type="checkbox"/> Close when Loaded</p>						

## 12 APPENDIX — REFERENCE MATERIALS

### Objectives

- Highlight updates to QlikView clients
- Share a list of suggested further reading on design and data best practices

### QlikView Version 9.00 Clients

#### AJAX Clients

The AJAX client now has full support for all types of user objects and shared objects. The new user sheets are also supported.

Additional layout features previously not supported in the AJAX client have been added in QlikView 9.00, such as support for:

- On Open message alerts
- Gauges in table cells
- Images in list boxes
- Semantic list boxes
- x-axis scroll in charts
- Balloon pop-ups in charts
- Right-click menu on cycle icons
- Right-click menu on fast type change icons
- Free-floating current selections window
- Bookmark toolbar
- Maximization of sheet objects
- Automatic truncation of text in cells (as in installed client)

In addition to the above new layout features from QlikView 9.00 have been implemented also in the AJAX client.

Many of these capabilities are covered in the QlikView Designer II course.

#### QlikView Java Clients

The Java client now has full support for user objects and shared objects. Property dialogs are available for modification of objects as well as undo/redo commands and design grid. The new user sheets are also supported.

Additional layout features previously not supported in the Java client have been added, such as support for gauges in table cells and images in list boxes. In addition, new layout features from QlikView 9.00 have been implemented also in the Java client. This includes the spark lines in tables, button actions, tree-view list boxes and clickable URL links in table charts.

### Mobile Clients

With QlikView 9.00, for the first time it will be possible to bring along the power of QlikView analysis on mobile phones. Mobile clients include iPhone, JavaMobile client, AJAX on Mobiles.

## Suggested Reading - Design and Data

In addition to the built in Online Help and Reference Manuals that are part of any complete QlikView installation, the following generally available books are excellent tools for expanding your library of information about business intelligence tools and projects, in general, regardless of your QlikView knowledge or experience.

- Blastland, Michael and Andrew Dilnot. *The Numbers Game: The Commonsense Guide to Understanding Numbers in the News, In Politics and In Life*. New York: Gotham Books, 2009.
- Few, Stephen. *Information Dashboard Design: The Effective Visual Communication of Data*. Sebastopol, California: O'Reilly Media. 2006.
- Show Me the Numbers: Designing Tables and Graphs to Enlighten*. Oakland, California: Analytics Press. 2004.
- Norman, Donald A. *Design of Everyday Things, The*. New York: Basic Books. 2002. (reprinted from the original, entitled, *The Psychology of Everyday Things*.)
- Norman, Donald A. *Emotional Design: Why we Love (or Hate) Everyday Things*. New York: Basic Books. 2004.
- Tufte, Edward R. *Beautiful Evidence*. Cheshire, Connecticut: Graphics Press. 2006
- Visual Display of Quantitative Information*, Second Edition. Cheshire, Connecticut: Graphics Press. 2001.
- Ware, Colin. *Visual Thinking for Design*. Morgan Kaufmann, 2008.